IODICAL
18(3525)
118(352

Proceedings of the United States National Museum

SMITHSONIAN INSTITUTION • WASHINGTON, D.C.

Number 3525 1966 Volume 118, Pages 155–208

LIBRARY
MAY 16 1966
FISH & WILDLIFE SERVICE

REVISION OF THE PILARGIDAE (ANNELIDA: POLYCHAETA), INCLUDING DESCRIPTIONS OF NEW SPECIES, AND REDESCRIPTION OF THE PELAGIC *PODARMUS PLOA* CHAMBERLIN (POLYNOIDAE)

By MARIAN H. PETTIBONE

Proceedings of the United States National Museum

SMITHSONIAN INSTITUTION · WASHINGTON, D.C.

Volume 118 1966 Number 3525

REVISION OF THE PILARGIDAE (ANNELIDA: POLYCHAETA), INCLUDING DESCRIPTIONS OF NEW SPECIES, AND REDESCRIPTION OF THE PELAGIC *PODARMUS PLOA* CHAMBERLIN (POLYNOIDAE)

By MARIAN H. PETTIBONE
Associate Curator, Division of Worms

In studying some polychaete material from the Chesapeake Bay, collected by Dr. Marvin Wass of the Virginia Institute of Marine Science, 5 species of pilargids were found, including 3 new species and a species that appeared to be one of the questionable species of Webster, 1879, from Virginia. This prompted a review of the family. The Pilargidae was monographed by Hartman in 1947, including descriptions of 5 species, references to 21 species in all, and keys to the species of *Pilargis*, *Ancistrosyllis*, and *Loandalia*. Seven additional species and 3 genera were listed by Hartman in 1959 and 10 species and 1 genus have been added since 1959, bringing to 38 the number of species included up to the present time in this family. *Ancistrosyllis longicirrata* Berkeley and Berkeley, 1961, was placed by the authors in the Pilargidae but an examination of the holotype, sent on loan through the kindness of Cyril Berkeley, shows that it should be referred to *Podarmus* Chamberlin in the Polynoidae; it is redescribed in this paper.

In addition to the literature, this study is based on collections in the U.S. National Museum and additional material borrowed from the following sources: Allan Hancock Foundation (AHF), through Dr. Olga Hartman, including type material of 5 species; American Museum of Natural History (AMNH), through Dr. Meredith Jones, including type material of 2 species; Mr. Cyril Berkeley, Marine Biological Station, Nanaimo, Canada, including type material of 2 species; Dr. Roland Wigley, Bureau of Commercial Fisheries, Woods Hole, Mass.; Mr. Pierre Brunel, Marine Biological Station, Gaspé, Canada. I wish to express my deep appreciation to those mentioned for their cooperation and loan of material. I am particularly grateful to Dr. Marvin Wass for the opportunity of studying the pilargid material from Virginia, which led into a much more extended study than had been anticipated.

This study was aided in part by a grant from the National Science Foundation (NSF GS–1269).

The genera that have been referred to the Pilargidae have had a checkered history, as shown by table 1, which gives for each genus its original placement in the Polychaeta and its subsequent disposition by various polychaete workers. Not all polychaete authorities have recognized the Pilargidae, referring the species instead to Hesionidae (Ehlers, Chamberlin, Horst, Fauvel, Mesnil, Augener, Southern, Monro, and Treadwell). Omitting the larval *Harpochaeta* and the questionable *Hermundura*, 4 of the 12 remaining genera that have been proposed were indicated to have doubtful family connections and were placed in "genera incertae sedis"; 2 were placed in new families (Otopsidae and Kynephoridae), 3 were considered to be aberrant Syllidae, 1 was placed in the Hesionidae, and 2 in the Pilargidae. This further emphasizes the heterogeneous and enigmatic characters of the family.

The pilargid genera that have been generally recognized are *Pilargis*, *Ancistrosyllis*, and *Loandalia*. As new species have been described, they have for the most part been added to one of these three genera and the groupings of species within the genera have become quite heterogeneous. In this revision, I have attempted to define and limit the genera more clearly, and I have made use of three additional genera which have been either ignored or considered to be questionable: (1) *Sigambra* Müller, 1858, has been considered to be indeterminable, but the figures and description of *S. grubii* seem to be sufficiently detailed to be used. (2) *Cabira* Webster, 1879, a questionable genus based on the confusing description of *C. incerta*, is reinstated, based on recent material collected in Chesapeake Bay. (3) *Synelmis* Chamberlin, 1919, with a single species, *S. simplex*, has been previously overlooked.

TABLE 1.—*List of genera of Pilargidae, indicating their original placement in the Polychaeta and their subsequent disposition*

Genus and type-species by monotypy	Original placement in Polychaeta	Subsequent disposition
Sigambra Müller, 1858 *S. grubii* Brazil	Amytidea Grube? (=Syllidae)	Pilargidae, indeterminable, perhaps same as *Ancistrosyllis*—Hartman, 1947 (footnote), 1959. Retained, see page 179.
Hermundura Müller, 1858 *H. tricuspis* Brazil	Ariciaea (includes Orbiniidae, Spionidae, Magelonidae)	Pilargidae, questionable—Hartman, 1959. Questionable genus and species; same as *Loandalia*? see page 195.
Ancistrosyllis McIntosh, 1879 *A. groenlandica* Greenland	aberrant Syllidae (provisionally)	Syllidae, aberrant—Langerhans, 1881. Hesionidae—Ehlers, 1908; Chamberlin, 1919; Horst, 1921; Fauvel, 1919, 1920, 1923, 1953; Southern, 1921; Monro, 1933a; Treadwell, 1941. Pilargidae—Hessle, 1925; Hartman, 1945, 1947, 1959, 1963; Uschakov, 1955; Hartmann-Schröder, 1959; Kitamori, 1960; Berkeley and Berkeley, 1961; Wesenberg-Lund, 1962; Uschakov and Wu, 1962; Day, 1963; see page 164.
Phronia Webster, 1879 *P. tardigrada* Virginia	incertae sedis	Pilargidae, preoccupied in Diptera, = *Pilargis*—Saint-Joseph, 1899. Indeterminable to species, see page 161.
Cabira Webster, 1879 *C. incerta* Virginia	incertae sedis	Hesionidae, =*Ancistrosyllis*—Fauvel, 1920. Pilargidae, questionable—Hartman, 1947, 1959. Revised, see page 177.
Harpochaeta Korschelt, 1893 *H. cingulata* Mediterranean, in plankton	larval Polychaeta (Syllidae? Hesionidae?)	Hesionidae, =*Ancistrosyllis*—Ehlers, 1908; Fauvel, 1920, 1923. Pilargidae, =*Ancistrosyllis*—Hartman, 1947, 1959. Larval pilargid, genus? see page 195.

TABLE 1.—Continued

Genus and type-species by monotypy	Original placement in Polychaeta	Subsequent disposition
Pilargis Saint-Joseph, 1899 *P. verrucosa* France	Pilargidae, new family	Hesionidae—Fauvel, 1920, 1923; Horst, 1921; Berkeley and Berkeley, 1948. Pilargidae—Hessle, 1925; Hartman, 1947, 1959; Uschakov, 1955; see page 160.
Otopsis Ditlevsen, 1917 *O. longipes* South of Iceland	Otopsidae, new family	Pilargidae—Hartman, 1947 (footnote), 1959; Uschakov, 1955; see page 164.
Synelmis Chamberlin, 1919 *S. simplex* South Pacific	Syllidae	Pilargidae, = *Ancistrosyllis*, perhaps *A. rigida* Fauvel—Hartman, 1959. Retained, see page 190.
Kynephorus Ehlers, 1920 *K. inermis* South Pacific	Kynephoridae, new family	Hesionidae, = *Ancistrosyllis*—Augener, 1927; Fauvel, 1953. Pilargidae, = *Ancistrosyllis*—Hartman, 1947. = *Synelmis*, see page 190.
Telehsapia Fauvel, 1932 *T. annandalei* Gulf of Siam	incertae sedis (very aberrant euniceid?)	Pilargidae—Hartman, 1947. Hesionidae—Fauvel, 1953. Pilargidae, questionable; same as *Loandalia*? see page 195.
Loandalia Monro, 1936 *L. aberrans* South West Africa	incertae sedis (aberrant hesionid?)	Hesionidae—Mesnil and Fauvel, 1939; Berkeley and Berkeley, 1941. Pilargidae—Hartman, 1947, 1959; Hartmann-Schröeder, 1959; Day, 1963; see page 195.
Glyphohesione Friedrich, 1950 *G. klatti* Europe	Hesionidae	Pilargidae, = *Ancistrosyllis*—Hartman, 1959; Eliason, 1962. = *Synelmis*, see page 190.
Ancistargis Jones, 1961 *A. papillosus* Gulf of Mexico	Pilargidae	Pilargidae, = *Ancistrosyllis*, see page 164.

Based on this revision, many pilargid species are recombined and some species put into synonymy. Seven genera of Pilargidae are herein retained: *Ancistrosyllis* (9 species), *Sigambra* (9 species), *Pilargis* (4 species), *Cabira* (4 species), *Loandalia* (2 species), *Synelmis* (2 species), *Otopsis* (2 species). I have not included *Telehsapia* Fauvel, with the questionable *T. annandalei*, or *Hermundura* Müller, with the questionable *H. tricuspis*, except to place them both questionably under *Loandalia* Monro. *Phronia* Webster, preoccupied, is referred to *Pilargis*. *Kynephorus* Ehlers and *Glyphohesione* Friedrich are referred to *Synelmis*. *Ancistargis* Jones is referred to *Ancistrosyllis*. *Harpochaeta* Korschelt is based on the larval form *H. cingulata*. For each genus, a synonymy, diagnosis, list of species, and key to the species are given. Where material was available for study, descriptions and figures of some of the species are included.

Descriptions are given for the following species (the 5 species of pilargids from Chesapeake Bay are noted by asterisks):

PILARGIDAE

Ancistrosyllis breviceps Hartman
Ancistrosyllis groenlandica McIntosh
Ancistrosyllis hamata (Hartman), new combination
**Ancistrosyllis hartmanae*, new species
**Ancistrosyllis jonesi*, new species
Ancistrosyllis papillosa (Jones), new combination
**Cabira incerta* Webster, revised
Loandalia fauveli Berkeley and Berkeley
Pilargis berkeleyae Monro
Sigambra bassi (Hartman), new combination
Sigambra grubii Müller
**Sigambra tentaculata* (Treadwell), new combination
**Sigambra wassi*, new species
Synelmis albini (Langerhans), new combination

POLYNOIDAE

Podarmus ploa Chamberlin

Family Pilargidae Saint-Joseph, 1899

Body vermiform, cylindrical, somewhat depressed, or flattened, ribbon-like. Integument smooth or papillated. Prostomium, tentacular segment, and first setigerous segment more or less fused. Prostomium usually small, inconspicuous, usually with antennae (3 to 0); median antenna, when present, on posterior part of prostomium; with pair of biarticulate palps consisting of large palpophores more or less set off from prostomium and small palpostyles (filiform, button-like or absent); eyes usually absent. Tentacular segment achaetous, apodous, with usually 2 pairs of tentacular cirri (rarely one pair or none). Dorsal cirri of first setigerous segment often longer than following.

Parapodia subbiramous. Notopodia reduced to embedded notoacicula in cirrophores of dorsal cirri, with or without additional capillary setae or stout emergent acicular setae which may be straight or hooked. Neuropodia cylindro-conical, with embedded neuroacicula and simple neurosetae (no compound setae, as in Hesionidae). Dorsal and ventral cirri usually present. Pygidium usually with pair of anal cirri. Proboscis unarmed, bulbous or long cylindrical, usually with circlet of papillae around opening. Intestine usually with intestinal caeca (at least in forms with well-developed parapodia). Burrowing forms.

Key to the Genera of Pilargidae

1. With internal notoacicula only or with additional fine capillary notosetae . 2
   With stout emergent dorsal setae in addition to internal notoacicula . . . 4
2. Without antennae, tentacular cirri, dorsal or ventral cirri (small cirri may be present at terminal parts of neuropodial lobes but not in usual position). Notopodia with projecting stout notoacicula and few slender notosetae. Body subcylindrical . . . . . **Loandalia** Monro, p. 195
   With antennae, tentacular cirri, dorsal and ventral cirri. Notopodia with internal notoacicula only. Body flattened, ribbon-like 3
3. Two small lateral antennae, without median antenna. Palps biarticulate, with small palpostyles. Ventral cirri short, conical. Integument minutely papillated . . . . . **Pilargis** Saint-Joseph, p. 160
   Three small antennae, median and lateral. Palps indistinct, without palpostyles. Ventral cirri lamelliform. Integument smooth, not papillated . . . . . **Otopsis** Ditlevsen, p. 164
4. Stout emergent dorsal setae straight, not hooked. Body subcylindrical, with parapodia sharply marked off from body. Neurosetae capillary, limbate. Integument smooth, not papillated. . . . . **Synelmis** Chamberlin, p. 190
   Stout emergent dorsal setae hooked 5
5. Body subcylindrical, with parapodia poorly developed. Dorsal and ventral cirri small or lacking . . . . . **Cabira** Webster, p. 177
   Body elongate, depressed, with parapodia deeply cut. Dorsal and ventral cirri distinct 6
6. Prostomium small, inconspicuous, with antennae shorter than palps. Tentacular cirri short. Dorsal cirri of first setiger similar to or slightly longer than following. Dorsal cirri short. Neurosetae longer to shorter, with tips slightly bent, smooth, and spinous. Integument papillated. **Ancistrosyllis** McIntosh, p. 164
   Prostomium larger, with antennae longer than palps. Tentacular cirri long. Dorsal cirri of first setiger unusually long. Dorsal cirri long and slender. Neurosetae with capillary tips. Integument smooth. **Sigambra** Müller, p. 179

Genus *Pilargis* Saint-Joseph, 1899

Pilargis Saint-Joseph, 1899. [Type-species: *P. verrucosa* Saint-Joseph, 1899, by monotypy. Gender: feminine.]

Phronia Webster, 1879. [Type-species: *P. tardigrada* Webster, 1879, by monotypy. Gender: feminine. Preoccupied by Winnerz, 1863, in Diptera.]

Diagnosis: Body long, flattened, ribbon-like, with parapodia deeply cut. Prostomium reduced, biarticulate palps with large ovoid palpo-

phores and small papillar palpostyles, paired short lateral antennae, without median antenna. Tentacular segment with 2 pairs of tentacular cirri. Parapodia subbiramous. Notopodia with inflated cirrophores with internal notoacicula, without notosetae; conical dorsal cirri more or less set off from dorsal cirrophores. Neuropodia conical lobes with stout neuroacicula; neurosetae simple, variable in length; ventral cirri short, conical. Pygidium with or without short anal cirri. Proboscis unarmed, globular. Integument minutely papillated.

The following species have been referred to *Pilargis:*

P. tardigrada (Webster, 1879, p. 258), as *Phronia tardigrada.* Virginia. See Fauvel, 1920, p. 212. Questionable species. Type-specimen not available.

P. verrucosa Saint-Joseph, 1899, p. 175. France. See Fauvel, 1920, p. 212; 1923, p. 252.

P. perezii Charrier, 1924, p. 11. France. Referred to *P. verrucosa,* Fauvel, 1925, p. 88.

P. pacifica (Zachs, 1933, p. 128), as *P. verrucosa pacifica.* North Japan Sea. See Uschakov, 1955, p. 201.

P. berkeleyae Monro, 1933b, p. 673, as *P. berkeleyi* (named after Edith Berkeley). Washington, North Pacific. See page 161.

P. maculata Hartman, 1947, p. 494. Central California. Referred to *P. berkeleyae,* see page 161.

P. falcata Day, 1957, p. 70. South Africa. Referred to *Ancistrosyllis,* see page 165.

P. matsunagaensis Kitamori, 1960, p. 1088. Seto-Inland Sea, Japan. Referred to *Ancistrosyllis,* see page 165.

P. hamatus Hartman, 1960, p. 88. Southern California. Referred to *Ancistrosyllis,* see page 165.

Key to the Species of *Pilargis*

1. Neurosetae uniformly simple, capillary 2
   Some neurosetae with slightly hooked tips 3
2. Tentacular cirri subequal . . . . . **P. pacifica** (Zachs)
   Upper pair of tentacular cirri much longer than lower pair. **P. tardigrada** (Webster)
3. Neurosetae smooth . . . . . **P. verrucosa** Saint-Joseph
   Shorter neurosetae with spinous blades . . . . . **P. berkeleyae** Monro

Pilargis berkeleyae Monro

FIGURES 1, 2

Pilargis berkeleyi [sic] Monro, 1933b, p. 673, figs. 1–4.—Berkeley and Berkeley, 1935, p. 768; 1948, p. 57, figs. 85, 86.—Hartman, 1947, p. 491, pl. 59, figs. 1–8; 1963, p. 16.

Pilargis maculata Hartman, 1947, p. 494, pl. 60, figs, 1–5; 1963, p. 16.

Material examined: Elkhorn Slough, Monterey Bay, Calif., loan from Cyril Berkeley. Paratype of *P. maculata* Hartman, Moss Beach, Calif., AHF 1716, loan from Olga Hartman (long specimen without anterior end).

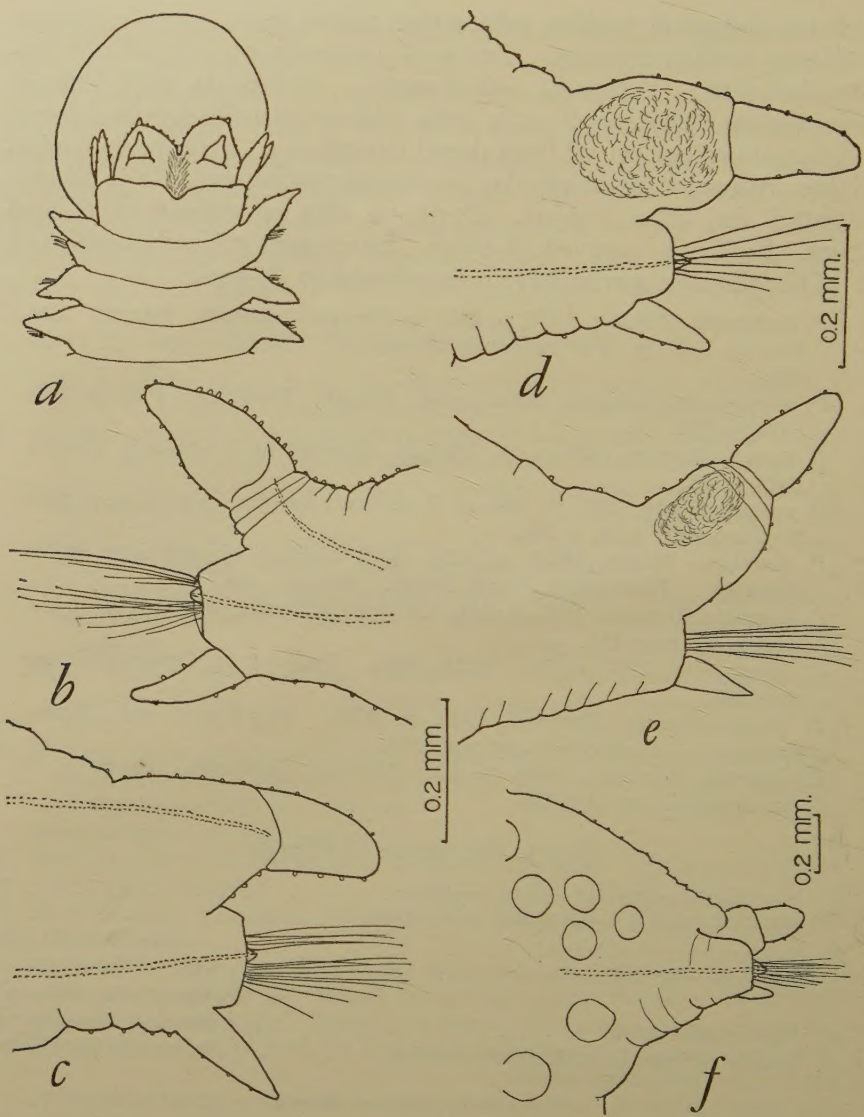

FIGURE 1.—*Pilargis berkeleyae* Monro (*a–e* from complete specimen from Monterey Bay; *f*, from smaller incomplete specimen from same locality): *a*, dorsal view anterior end, with proboscis extended; *b*, parapodium from setiger 18; *c*, same, from setiger 75; *d*, same, from middle of body (about setiger 200), pigmented glandular area in dorsal cirrophore shown; *e*, same, from posterior part of body (about setiger 400); *f*, same, from middle of body, with some large yolky eggs visible.

Description: Length to 300 mm., width to 4 mm., segments to 500. Body flattened, ribbon-like, tapered anteriorly and posteriorly. Integument with low papillae on body and appendages, more numerous dorsally. Prostomium small, inconspicuous, with ovate palpophores indistinct from prostomium and minute palpostyles, with paired short lateral antennae. Tentacular segment fused with prostomium, with two pairs of short tentacular cirri, dorsal pair slightly longer than ventral pair. Dorsal cirri of first setigerous

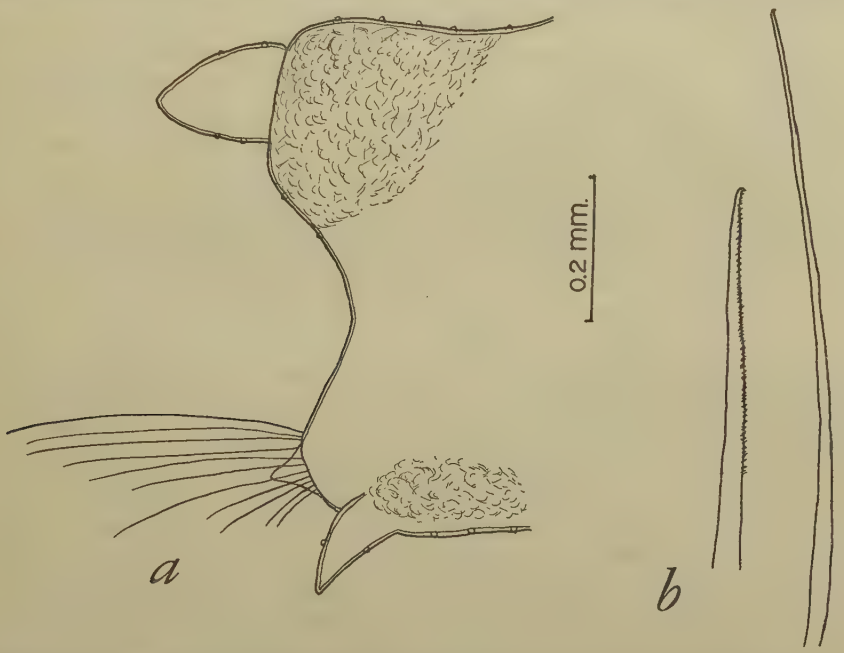

FIGURE 2.—*Pilargis berkeleyae* Monro (from paratype of *P. maculata* Hartman, AHF 1716): *a*, parapodium from middle of body of inflated specimen, with pigmented glandular areas shown; *b*, neurosetae from same.

segment longer than following. Inflated dorsal cirrophores of notopodia variable in shape, as indicated in figures drawn from different parts of body and individuals in different states of contraction; notoacicula colorless, without notosetae; dorsal cirri conical to ovate. Neuropodia conical, with stout neuroacicula and bundle of simple neurosetae; neurosetae variable in length; shorter neurosetae serrate, with tips slightly hooked, sometimes faintly bifid; longest neurosetae tapering to fine slightly hooked tips, smooth or very faintly serrated; ventral cirri on all setigerous segments. Pygidium rounded, with 0, 2 or 3 anal cirri. Proboscis thin-walled translucent sac. Reddish to dark-brown glandular areas in notopodial cirrophores and ventral bases of neuropodia.

Distribution: Washington to southern California. Intertidal to 225 fms.

Genus *Otopsis* Ditlevsen, 1917

Otopsis Ditlevsen, 1917. [Type-species: *O. longipes* Ditlevsen, 1917, by monotypy. Gender: masculine.]

Diagnosis: Body long, flattened, with lateral parapodia deeply cut. Prostomium small, with 3 small antennae, 2 palps (without palpostyles). Tentacular segment achaetous, with 2 pairs tentacular cirri. Parapodia subbiramous. Notopodia with embedded notoacicula only, without notosetae or emergent acicular setae. Dorsal cirri large, lamelliform. Neuropodia conical, with neuroacicula and simple capillary neurosetae. Ventral cirri lamelliform. Pygidium? Proboscis? Integument smooth, not papillated.

A single species and subspecies have been described:

Otopsis longipes Ditlevsen, 1917, p. 67. South of Iceland, 843 fms.
Otopsis longipes pacificus Uschakov, 1950, p. 171, as *O. longipes* var. *pacifica*. Okhotsk Sea, 709–757 fms.

Genus *Ancistrosyllis* McIntosh, 1879

Ancistrosyllis McIntosh, 1879. [Type-species: *A. groenlandica* McIntosh, 1879, by monotypy. Gender: feminine.]
Ancistargis Jones, 1961. [Type-species: *A. papillosus* Jones, 1961, by original designation. Gender: feminine.]

Diagnosis: Body elongate, depressed, with lateral parapodia deeply cut. Prostomium small, inconspicuous; 2 biarticulate palps with large palpophores and small palpostyles; antennae short, usually 3 in number, consisting of lateral antennae (rarely absent) and posterior median antenna (may be absent). Tentacular segment more or less fused with prostomium, achaetous, with 2 pairs of short tentacular cirri (rarely only 1 pair?). Dorsal and ventral cirri short. Parapodia subbiramous. Notopodia inflated, with notoacicula curved distally, with stout emergent hooked setae beginning on setigers 3–13. Neuropodia with conical to truncate setigerous lobes, with neuroacicula and simple neurosetae. Neurosetae variable in length, smooth, finely to coarsely spinous, usually ending in slightly hooked tips (tips may be indistinctly bidentate). Pygidium with paired short anal cirri. Proboscis unarmed, cylindrical, globular, with or without papillae. With intestinal caeca. Integument with scattered papillae.

Remarks: The chief distinction between *Ancistargis* and *Ancistrosyllis* is the absence of a median antenna in the former and its presence in the latter. The median antenna, when present, is small to minute and often difficult to detect. Located as it is on the posterior part of the prostomium, it may be hidden when the prostomium is retracted partially within the tentacular segment. Of the species listed below,

four lack a median antenna: *A. falcata*, *A. matsunagaensis*, *A. hamata*, and *A. papillosa*. One species, *A. quellina*, lacks lateral antennae.

The following species have been referred to *Ancistrosyllis:*

A. groenlandica McIntosh, 1879, p. 502. Davis Strait, Greenland. See page 166.

A. albini Langerhans, 1881, p. 107. Canary Islands, North Atlantic. Referred to *Synelmis*, see page 191.

A. robusta Ehlers, 1908, p. 59. South Atlantic. Referred to *Sigambra*, see page 181.

A. rigida Fauvel, 1919, p. 337. Red Sea. Referred to *Synelmis albini*, see page 191.

A. constricta Southern, 1921, p. 573. India. Referred to *Sigambra*, see page 181.

A. gracilis Hessle, 1925, p. 34. Off Japan. Referred to *Synelmis albini*, see page 191.

A. gorgonensis Monro, 1933a, p. 26. Pacific side of Panama. Referred to *Synelmis albini*, see page 191.

A. tentaculata Treadwell, 1941, p. 1. Long Island, N.Y. Referred to *Sigambra*, see page 182.

A. bassi Hartman, 1945, p. 15. Florida and North Carolina. Referred to *Sigambra*, see page 186.

A. ocellata Hartmann-Schröder, 1959, p. 109. Central America. Referred to *Sigambra*, see page 181.

A. hanaokai Kitamori, 1960, p. 1086. Seto-Inland Sea. Referred to *Sigambra*, see page 181.

A. longicirrata Berkeley and Berkeley, 1961, p. 658. Off Peru, in plankton. Synonym of *Podarmus ploa*, Polynoidae, see page 200.

A. quellina Wesenberg-Lund, 1962, p. 68. Chile.

A. pilargiformis Uschakov and Wu, 1962, p. 75. Yellow Sea. Referred to *Cabira*, see page 177.

A. parva Day, 1963, p. 395. South Africa. Referred to *Sigambra*, see page 181.

A. breviceps Hartman, 1963, p. 13. Southern California, see page 168.

The following species are herein referred to *Ancistrosyllis:*

A. falcata (Day, 1957, p. 70), as *Pilargis falcata*. South Africa.

A. matsunagaensis (Kitamori, 1960, p. 1088), as *Pilargis matsunagaensis*. Seto-Inland Sea, Japan.

A. hamata (Hartman, 1960, p. 88), as *Pilargis hamatus*. Southern California. See page 168.

A. papillosa (Jones, 1961, p. 3), as *Ancistargis papillosus*. Florida. See page 170.

A. hartmanae, new species. Chesapeake Bay. See page 172.

A. jonesi, new species. Chesapeake Bay. See page 173.

Key to the Species of *Ancistrosyllis*

1. Ventral cirri beginning on setiger 1. With lateral antennae. Tentacular cirri 2 pairs. With notoacicula 2
   Ventral cirri beginning on setiger 3–4 5

2. Notopodial hooked setae beginning on setiger 3–6. Dorsal cirri of first setiger longer than following 3
   Notopodial hooked setae beginning on setiger 7–13 4
3. Short median antenna. Notopodial hooked setae beginning on setiger 4–6. **A. groenlandica,** p. 166
   Without median antenna. Notopodial hooked setae beginning on setiger 3. **A. matsunagaensis.**
4. Notopodial hooked setae beginning on setiger 7. Without median antenna. With paired deep-set minute eyes. Dorsal cirri small, ovoid. Ventral cirri small, near tips of parapodial lobes . . . . . **A. falcata**
   Notopodial hooked setae beginning on setiger 13 (not emergent at first). With short median antenna (sometimes difficult to detect). Without eyes. Dorsal cirri short, subulate. Ventral cirri larger, at base of neuropodial lobes . . . . . **A. breviceps,** p. 168
5. Ventral cirri beginning on setiger 4. Notopodial hooked setae beginning on setiger 4. Tentacular cirri 1 pair. Without lateral antennae. Without notoacicula. Eyespots 2 pairs . . . . . **A. quellina**
   Ventral cirri beginning on setiger 3. Tentacular cirri 2 pairs. With lateral antennae. With notoacicula 6
6. Notopodial hooked setae beginning on setiger 3. Eyes 1 pair 7
   Notopodial hooked setae beginning on setiger 6. Without eyes 8
7. Without median antenna. Lateral antennae extending beyond palps. Anterior part of digestive tract not looped . . . . . **A. papillosa,** p. 170
   Short median antenna, which may be partially hidden by tentacular segment. Lateral antennae shorter than palps. Anterior part of digestive tract looped . . . . . **A. hartmanae,** p. 172
8. Without median antenna. Notopodial acicular lobe low, thick, not elongated, with short conical dorsal cirri . . . . . **A. hamata,** p. 168
   Small median antenna (easily overlooked). Notopodial acicular lobe enlarged, conical, extending nearly to tip of neuropodial lobe, with small dorsal cirri indistinctly separated from notopodial lobe . . **A. jonesi,** p. 173

Ancistrosyllis groenlandica McIntosh

FIGURE 3

Ancistrosyllis groenlandica McIntosh, 1879, p. 502, pl. 65, figs. 3, 20.—Pettibone, 1963, p. 110, fig. 30.—Hartman, 1965, p. 71.

Material examined: North Atlantic, *Albatross* III, 42°10′ N., 69°18′ W., 100 fms., 1955, R. Wigley; *Delaware* sta., 42°31′ N., 67°48′ W., 175 fms., 1959, R. Wigley. Gulf of St. Lawrence, P. Brunel.

Description: Length to 40 mm., width to 1 mm., segments to 70. Body flattened dorsoventrally, widest in middle region, tapering anteriorly and posteriorly, with parapodia deeply cut. Prostomium with large palpophores and small button-like palpostyles (easily overlooked); 3 small subequal antennae shorter than palps; without eyes. Tentacular segment indistinct from prostomium, with 2 pairs of short subequal tentacular cirri, similar to antennae; irregular lateral pigmented areas may be present (fig. 3*a*; these are probably the large lateral eyes mentioned and figured by McIntosh). Dorsal cirri of

first setiger about twice as long as following. Dorsal cirri fusiform, short, extending slightly beyond neuropodial lobes. Notopodia with somewhat inflated notoacicular lobes and emergent hooked setae

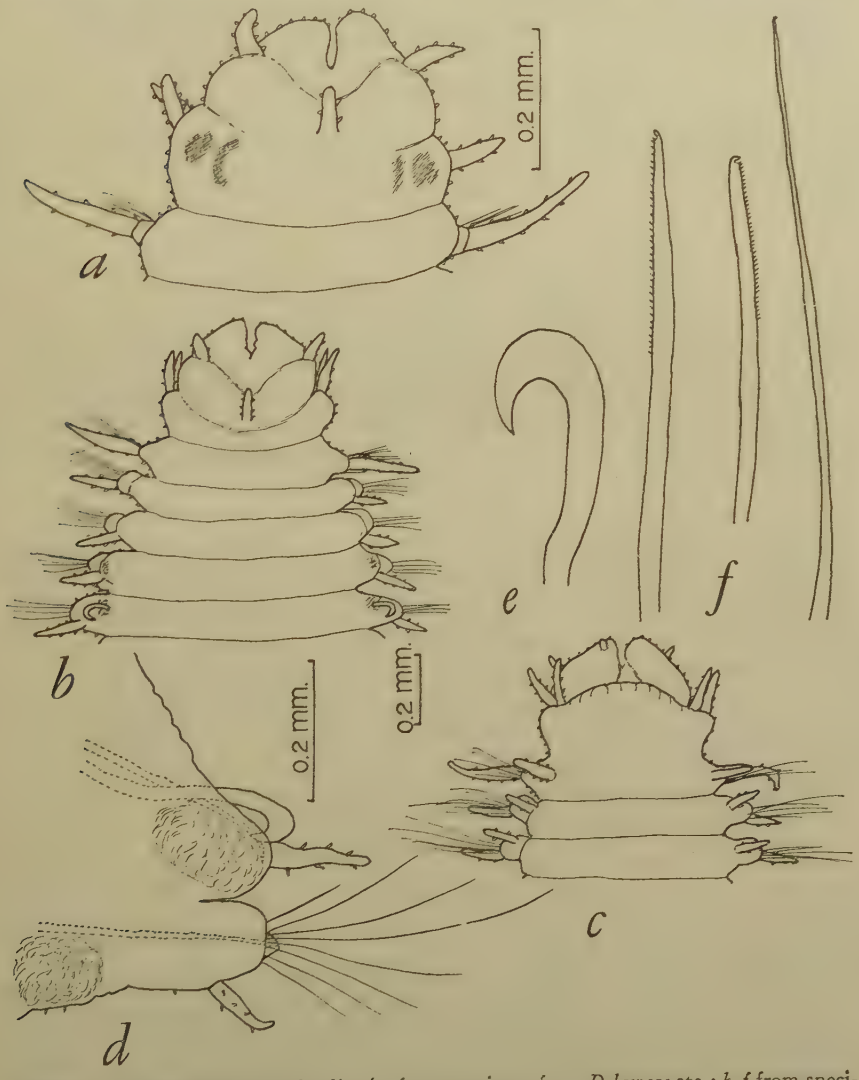

FIGURE 3.—*Ancistrosyllis groenlandica* (*a*, from specimen from *Delaware* sta.; *b–f* from specimen from *Albatross* sta.): *a*, dorsal view anterior end; *b*, same, from another specimen; *c*, ventral view anterior end; *d*, middle parapodium; *e*, notopodial hooked seta; *f*, neurosetae.

beginning on setiger 4 to 6. Neuropodial lobe conical, with neuroaciculum and neurosetae variable in length; shorter ones wider, tapering to slightly hooked tips, faintly spinous; longer ones more slender, smooth or very finely spinous, with fine slightly hooked tips.

Pygidium rounded, with paired short anal cirri similar to dorsal cirri. Proboscis short, cylindrical, with few scattered papillae. With conspicuous rust-colored glandular areas in anterior part of notopodial lobe (beginning on setiger 4) and ventrally near bases of parapodia (fig. 3*d*). Integument with numerous scattered short papillae.

Distribution: West Greenland, British Isles, Gulf of St. Lawrence to off-shore New Jersey, off northeastern South America. In 25 to 1611 fms.

Ancistrosyllis breviceps Hartman

FIGURE 4

Ancistrosyllis breviceps Hartman, 1963, p. 13, fig. 1, a–d.

Material examined: Holotype of *Ancistrosyllis breviceps*, Santa Monica Canyon, 386 fms., Sta. 7517, loan from Olga Hartman (AHF).

Description: Body depressed, parapodia longer than body width. Prostomium small, with large palpophores and small palpostyles (visible ventrally); antennae very short, not extending beyond palps. Tentacular segment with 2 pairs of subequal tentacular cirri, longer than antennae. Dorsal cirri of first setiger slightly longer than following. Notopodia low, with slender notoacicula and prominent emergent hooked setae beginning about setiger 13 (possibly irregular, not emergent at first); dorsal cirri short, subulate. Neuropodia long, subconical, with neuroacicula and simple neurosetae. Neurosetae variable in length, with tips slightly hooked (according to Hartman, all neurosetae taper to fine tips). Ventral cirri short, subulate, begin on first setiger. Proboscis? Pygidium? Integument minutely papillated, especially dorsally.

Distribution: Southern California. In 191–533 fms.

Ancistrosyllis hamata (Hartman)

FIGURE 5

Pilargis hamatus [sic] Hartman, 1960, p. 88, pl. 7, figs. 4–6; 1963, p. 16.

Material examined: Paratype (anterior fragment of 60 segments) from off Long Beach breakwater light, southern California, 12 fms., sandy mud, Sta. 2311, loan from Olga Hartman (AHF).

Description: Length to 30 mm., width to 2 mm., segments to 100. Body flattened dorsoventrally, widest in middle region, tapering anteriorly and posteriorly, with parapodia deeply cut. Prostomium with large palpophores and small palpostyles, with low conical lateral antennae, much shorter than palps. Tentacular segment indistinct from prostomium, with 2 pairs of short subequal tentacular cirri. Dorsal cirri of first setiger slightly longer than following. Notopodia

with low inflated notoacicular lobes, with very small conical dorsal cirri, much shorter than neuropodial lobes, with prominent stout emergent hooks beginning on setiger 6 (4-7, according to Hartman). Neuropodial lobes short, truncate, with retractile conical neuroacicular lobes, with bundle of about 7 simple neurosetae. Neurosetae variable

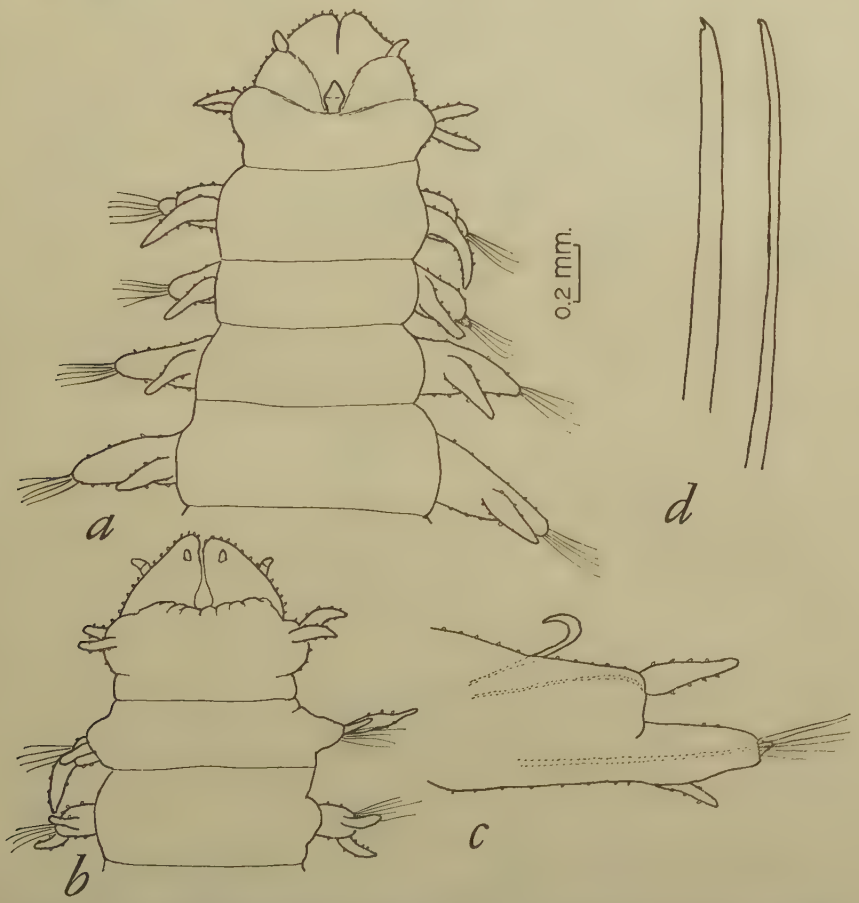

FIGURE 4.—*Ancistrosyllis breviceps* (from holotype): *a*, dorsal view anterior end; *b*, ventral view anterior end; *c*, middle parapodium; *d*, neurosetae.

in length, faintly serrated, with tips slightly hooked, tips may be faintly bifid (according to Hartman, neurosetae of 2 kinds, slender, capillary and stouter, with bifid tips). Ventral cirri small, conical, beginning on setiger 3. Pygidium? Proboscis? With intestinal caeca. Integument with rather thick cuticle, with scattered minute papillae.

Distribution: Southern California. In 12 to 721 fms.

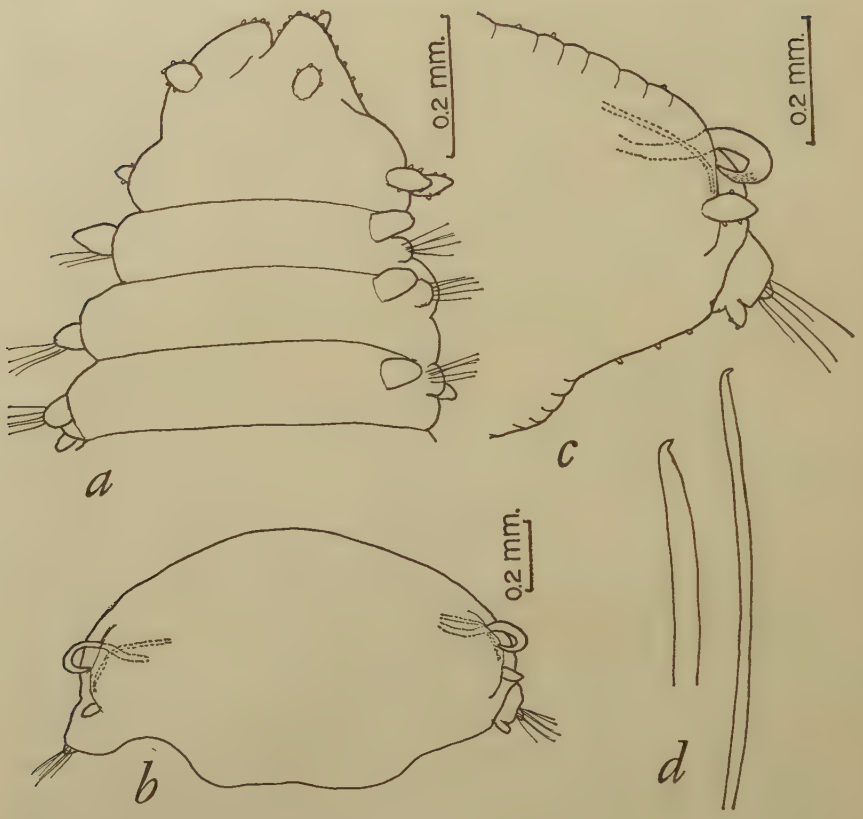

FIGURE 5.—*Ancistrosyllis hamata* (from paratype from Sta. 2311): *a*, dorsal view anterior end; *b*, cross section in region of setiger 60; *c*, parapodium from same; *d*, neurosetae.

Ancistrosyllis papillosa (Jones)

FIGURE 6

Ancistargis papillosus [sic] Jones, 1961, p. 3, figs. 1–14.

Material examined: Holotype and 2 paratypes from Alligator Harbor, Fla., loan from Meredith L. Jones (AMNH). One small specimen, Port Aransas, Tex., 5 fms., mud, M. L. Jones (AMNH).

Description: Length to 10 mm., width to 0.5 mm., segments to 54. Body flattened dorsoventrally, widest in middle region, tapering anteriorly and posteriorly, with segmental dorsal transverse ridges, parapodia deeply cut. Prostomium with large palpophores and small filiform palpostyles, with short digitiform lateral antennae extending slightly beyond palps, with paired small eyespots ventrally. Tentacular segment indistinct from prostomium, with 2 pairs of tentacular cirri, longer than palps. Dorsal cirri of first setiger similar to following. Dorsal cirri fusiform, short, extending slightly beyond neuro-

podial lobes. Notopodia with somewhat inflated notoacicular lobes and emergent hooked setae beginning on setiger 3. Neuropodia conical, with neurosetae of 3 kinds: long, slender, capillary; shorter,

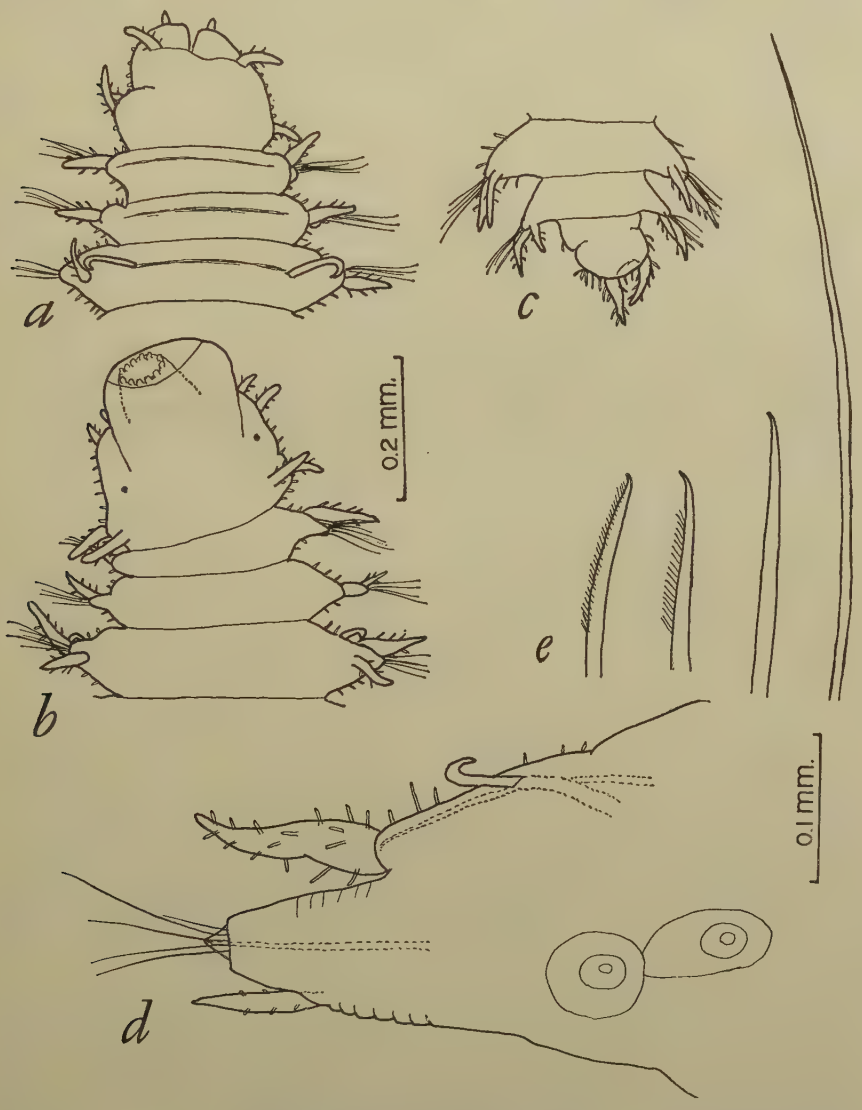

FIGURE 6.—*Ancistrosyllis papillosa* (from paratypes): *a*, dorsal view anterior end; *b*, ventral view anterior end, with proboscis partially extended; *c*, ventral view posterior end; *d*, middle parapodium, with two large yolky developing eggs shown; *e*, neurosetae.

faintly serrated, with slightly hooked tips; shortest, spinous, with hooked tips. Ventral cirri short, fusiform, shorter than dorsal cirri, beginning on setiger 3. Pygidium rounded, with pair short anal

cirri, similar to dorsal cirri. Proboscis cylindrical, with muscular core and thin transparent covering, with short papillae around opening. With intestinal caeca. Integument with numerous papillae on dorsal surface and cirri, with fewer papillae ventrally; papillae especially long on dorsal cirri and notopodial lobes.

Distribution: Gulf of Mexico (Florida, Texas). Intertidal to 5 fms.

Ancistrosyllis hartmanae new species

FIGURES 7, 8

The species is based on a single specimen from Chesapeake Bay off Rappahanock River, 37°32′ N., 76°07′ W. in 7 fms. in mud, July 21, 1961, M. Wass, collector, holotype USNM 30989. The species is named for Olga Hartman, eminent worker on the polychaetes.

Description: Length 25 mm., width 0.5 mm., segments 110. Body long, threadlike, flattened dorsoventrally, tapering anteriorly and posteriorly, parapodia deeply cut, appearing moniliform. Prostomium small, bilobed, partially retractable within tentacular segment, with paired biarticulate palps indistinctly set off from rest of prostomium, with palpophores large, papillated and small palpostyles visible ventrally, with pair of lateral antennae shorter than palps, with small unpaired median antenna posteriorly on prostomium, partially hidden by tentacular segment, with 2 deep-set eyes hidden by tentacular segment. Tentacular segment indistinctly separated from prostomium, achaetous, with 2 pairs of short subequal tentacular cirri, lateral and ventrolateral; ventrally forms lower lip of mouth. Dorsal cirri of first setiger similar to following. Parapodia subbiramous. Notopodial lobe low, inflated, with internal notoaciculum curving distally, with short digitiform dorsal cirrus shorter than neuropodial lobe; with stout emergent hooked acicular setae beginning on setiger 3. Neuropodium short, rounded, with retractile conical neuroacicular lobe, with bundle of about 5 neurosetae. Neurosetae simple, variable in length, longest ones smooth, tapering to fine tips, shorter ones finely spinous, all ending in slightly bent tips. Ventral cirri short, subequal to dorsal cirri, beginning on setiger 3. Pygidium rounded, with paired short subulate anal cirri. Proboscis not extended. Anterior part of digestive tract (in setigers 3–6) looped; with segmental intestinal caeca, 2 pairs per segment. Integument with scattered minute papillae, on body and appendages.

A. hartmanae may be separated from the other species of *Ancistrosyllis* as indicated in the key on page 165.

Distribution: Chesapeake Bay. In 7 fms.

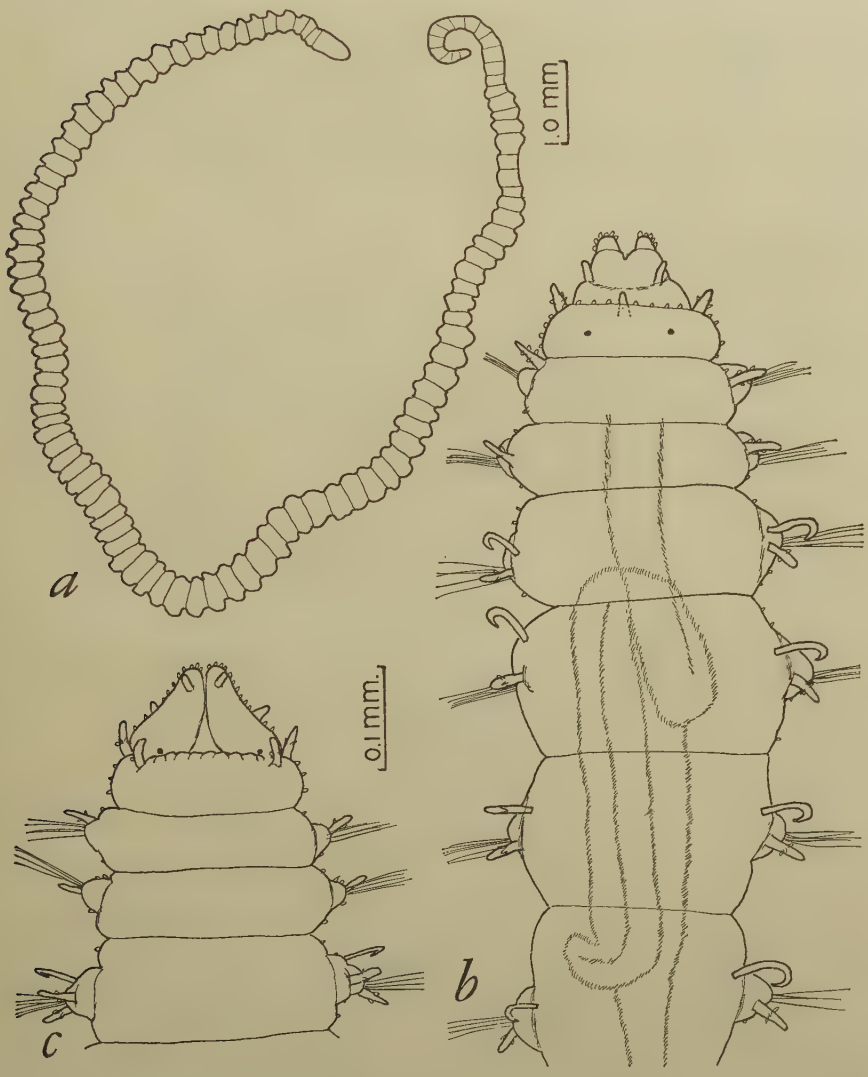

FIGURE 7.—*Ancistrosyllis hartmanae*, new species: *a*, general outline of animal; *b*, dorsal view anterior end, with looped part of digestive tract in setigers 3–6 shown; *c*, ventral view anterior end.

Ancistrosyllis jonesi, new species

FIGURES 9, 10

The species is based on 3 incomplete specimens collected by Marvin Wass in Chesapeake Bay off Rappahanock River in 7 fathoms in mud, July 21, 1961, holotype USNM 30983, 37°36′ N., 76°06′ W., and 2 paratypes USNM 30984, 37°32′ N., 76°07′ W. The species is named

for Meredith Jones, expressing in a small way my appreciation for his help and cooperation in our field of common interest.

Description: Length of incomplete holotype 16 mm., width 1.5 mm., segments 44. Body long, flattened dorsoventrally, tapered gradually anteriorly, with parapodia deeply cut. Prostomium with large subtriangular palpophores and minute palpostyles. Lateral

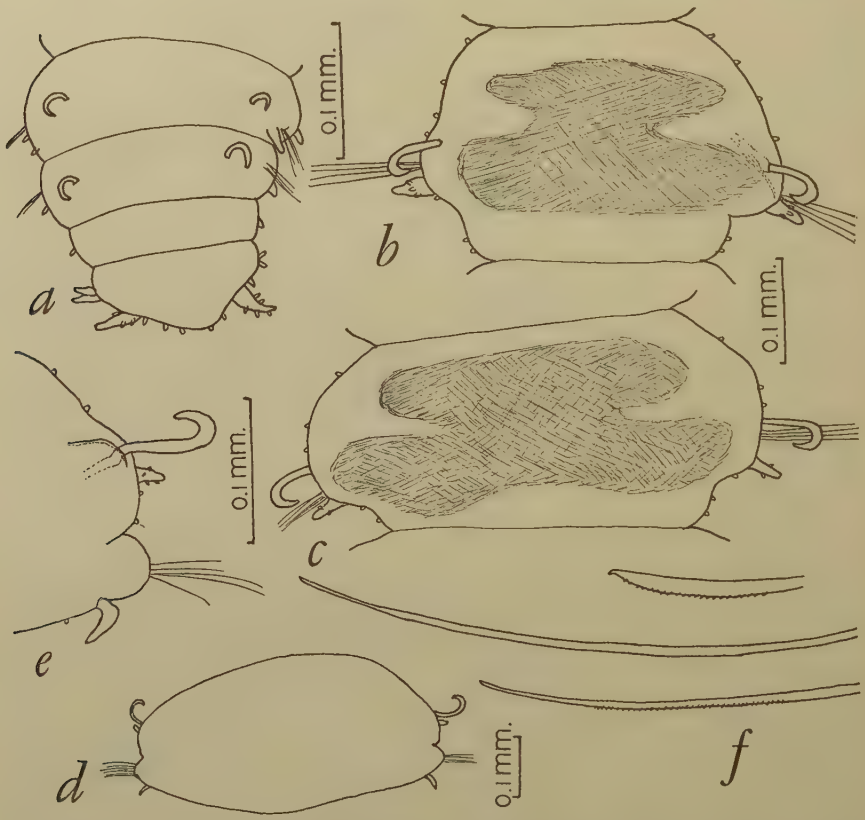

FIGURE 8.—*Ancistrosyllis hartmanae*, new species: *a*, dorsal view posterior end; *b*, dorsal view setiger 15, with intestinal caeca shown; *c*, same, from setiger 36; *d*, general outline of cross section through middle of body (about setiger 50); *e*, parapodium from same; *f*, neurosetae.

antennae short, subulate, shorter than palpophores. Posterior median antenna minute, easily overlooked. Without definite eyes but with brownish scattered pigment on posteriolateral parts of prostomium and tentacular segment. Tentacular segment indistinct from prostomium, achaetous, with 2 pairs of short, subulate, subequal tentacular cirri; ventrally forms lower lip of mouth. Dorsal cirri of first setiger slightly longer than following.

Parapodia subbiramous. Notopodia enlarged, inflated, conical, extending nearly to tips of neuropodial lobes, with notoacicula curving distally and enclosing extensions of intestinal caeca; dorsal cirri small, indistinctly separated from enlarged notopodial lobes; with stout emergent hooked notosetae beginning on setiger 6. Neuropodia

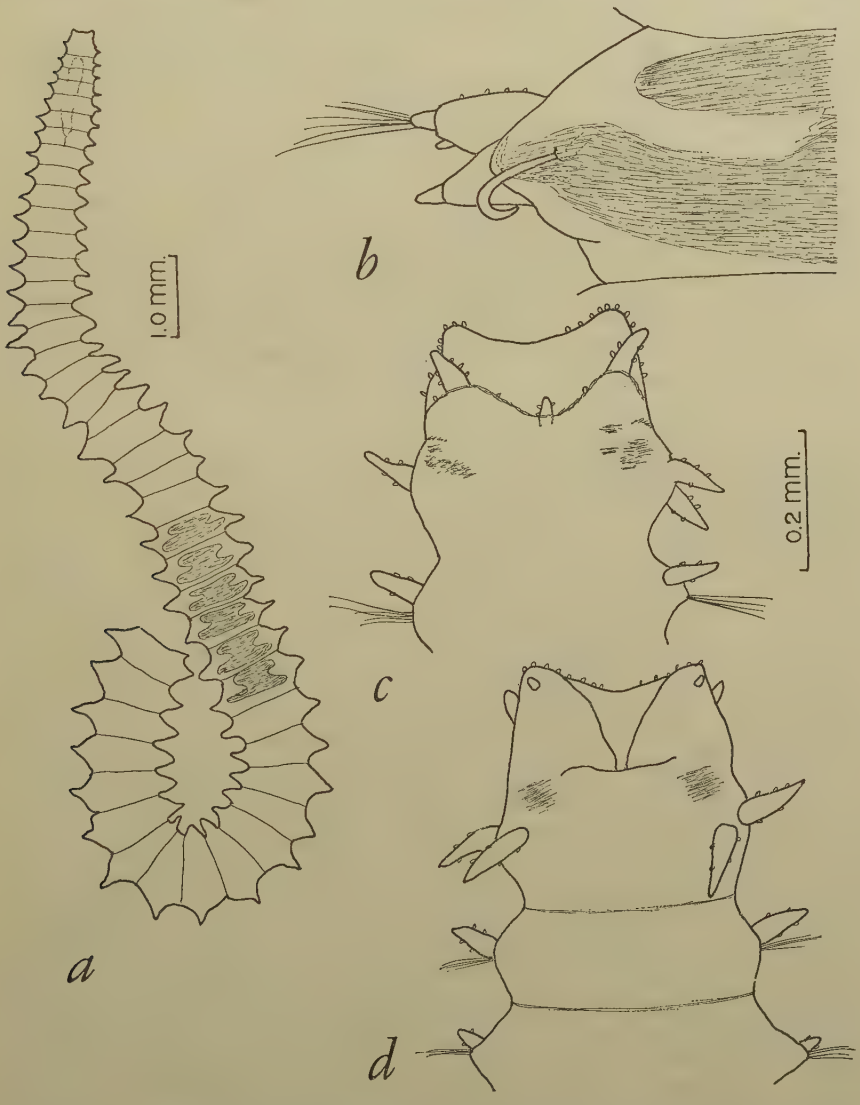

FIGURE 9.—*Ancistrosyllis jonesi*, new species (from holotype): *a*, general outline of incomplete holotype of 44 segments, outline of intestinal caeca shown in few segments; *b*, dorsal view parapodium, outline of intestinal caeca shown; *c*, dorsal view anterior end; *d*, ventral view anterior end.

conical, with tips truncate, with neuroaciculum and bundle of about 8 simple neurosetae; neurosetae variable in length, longest smooth, tapering to fine tips, shorter very finely spinous, shortest more coarsely spinous, all with slightly hooked tips which may be indistinctly bifid. Ventral cirri digitiform, extending beyond neuropodial lobes,

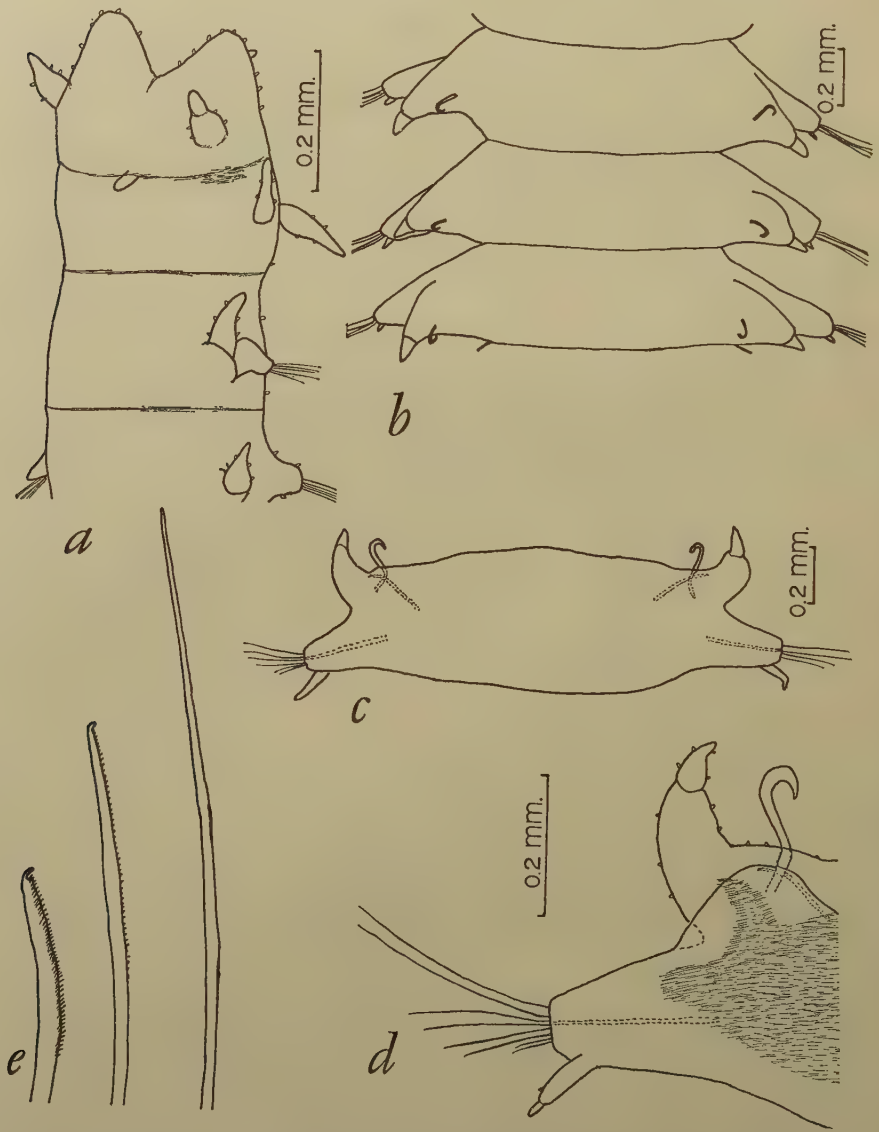

FIGURE 10.—*Ancistrosyllis jonesi*, new species (from paratype): *a*, dorsolateral view anterior end; *b*, dorsal view setigers 25–27; *c*, cross section body in region of setiger 30; *d*, parapodium of same, outline of intestinal caeca shown; *e*, neurosetae.

beginning on setiger 3. Pygidium? Proboscis not extended. Intestine with intestinal caeca, two pairs per segment, shorter anterior pair and longer posterior pair extending into notopodia. Integument with scattered minute papillae.

A. jonesi may be distinguished from the other species of *Ancistrosyllis* as indicated in the key on page 165. It is closest to *A. hamata*, differing by the development of the enlarged conical notopodial lobes and the small median antenna.

Distribution: Chesapeake Bay. In 7 fms.

Genus *Cabira* Webster, 1879, revised

Cabira Webster, 1879. [Type-species: *C. incerta* Webster, 1879, by monotypy. Gender: feminine.]

Remarks: *Cabira* was placed by Webster among "genera incertae sedis." The brief description of *C. incerta* is confused, particularly in regard to the parapodial rami. Fauvel (1920) referred the species to *Ancistrosyllis* among the Hesionidae, suggesting that perhaps the median antenna was lost. Hartman (1947) placed it in the Pilargidae and suggested that the name *Cabira* perhaps best be dropped, since the original account is much too faulty and incomplete.

The type of *Cabira incerta* has not been found in the U.S. National Museum, where most of Webster's polychaete material was deposited. As far as can be determined, it no longer exists. Among the pilargids collected in Chesapeake Bay off Rappahanock River, dredged in 7 fms. in mud by Marvin Wass, are five specimens which can be identified with *Cabira incerta*. I am herewith revising the genus and species, based on this new material.

Diagnosis: Body subcylindrical, with parapodia poorly developed. Prostomium small, with paired biarticulate palps consisting of large palpophores and very small palpostyles; with paired small lateral antennae (lacking in *C. capensis*); without median antenna. Tentacular segment indistinct from prostomium, achaetous, with 2 pairs of very small tentacular cirri. Parapodia poorly developed, subbiramous; notopodia represented by notoacicula and small dorsal cirri, with emergent stout hooked notosetae beginning on setigerous segments 6–8; neuropodia small, with neuroacicula and few similar neurosetae; neurosetae simple, delicate, capillary (additional short setae in *C. brevicirris*); ventral cirri small, below or at tips of neuropodia. Pygidium bilobed, without anal cirri. Proboscis cylindrical, sometimes ringed, with longitudinal basal rows of spines (in type-species) or with soft papillae (*C. brevicirris*).

According to this revision, *Cabira* includes the following:

C. incerta Webster, 1879, p. 267. Chesapeake Bay, Virginia.

C. pilargiformis (Uschakov and Wu, 1962, p. 75), as *Ancistrosyllis pilargiformis*. Yellow Sea.

C. capensis (Day, 1963, p. 396), as *Loandalia capensis*. South Africa.
C. brevicirris (Rangarajan, 1964, p. 122), as *Ancistargis brevicirris*. South India.

Key to the Species of *Cabira*

1. Lateral antennae lacking. Ventral cirri small, at tips of neuropodial lobes. Hooked notosetae begin on setiger 8. Integument papillated. Proboscis soft sac . . . . . **C. capensis**
   With pair small lateral antennae. Ventral cirri small, below neuropodial lobes. Integument smooth or with only few scattered papillae 2
2. Neurosetae of 2 kinds, slender capillary and short, with slightly recurved tips. Hooked notosetae begin on setigers 6–8. Proboscis with numerous, conical, soft papillae. . . . . **C. brevicirris**
   Neurosetae all similar, slender, capillary. 3
3. Hooked notosetae begin on setiger 7. Proboscis with longitudinal rows of spines basally . . . . . **C. incerta**
   Hooked notosetae begin on setiger 6. Proboscis? . . . . . **C. pilargiformis**

Cabira incerta Webster, 1879, revised

FIGURES 11, 12

Cabira incerta Webster, 1879, p. 267, pl. 11, figs. 155–157.—Hartman, 1947, p. 510.
Ancistrosyllis incerta Fauvel, 1920, p. 211.

Material examined: Chesapeake Bay off Rappahanock River, 37°32′N., 76°07′W., 7 fms., mud, July 21, 1961, Marvin Wass, collector, 5 specimens.

Description: Length to 18 mm., width to 1.5 mm., segments to 54. Body long, subcylindrical, flattened ventrally, arched dorsally, narrowest anteriorly, with indistinct segmental bulges (more prominent posteriorly). Prostomium and tentacular segment fused, with paired biarticulate palps consisting of large palpophores and small ventral palpostyles, with numerous papillae concentrated on anterior tips (=membranous expansions or thin plates covered with papillae of Webster); with pair very short lateral antennae arising from swollen bases or ceratophores indistinctly set off from prostomium. Tentacular segment achaetous, with 2 pairs of very short tentacular cirri.

Parapodia small, indistinct, subbiramous. Notopodium (=ventral ramus of Webster) represented by very small notopodial lobe or dorsal cirrus with internal notoaciculum, with stout emergent hooked notoseta (=strong hooked ventral seta of Webster) beginning on setiger 7 (setiger 6, according to Webster); sometimes with additional hooked seta in process of formation internally, indicating probable replacement of hooked setae (figs. 12*a*, *b*). Neuropodium (=dorsal ramus of Webster) short, conical, with neuroaciculum, tip of which sometimes projects slightly and few (2–4) similar neurosetae (=dorsal setae of Webster); neurosetae simple, slender, delicate, tapering to capillary tips; ventral cirri (=dorsal cirri of Webster) short, digitiform, below neuropodial lobe, beginning on setiger 3. Pygidium short,

bilobed, without anal cirri. Proboscis cylindrical, 3-ringed, with large papillae around opening of distal ring and few scattered micropapillae, with thickened cuticle in basal ring forming longitudinal ridges, of

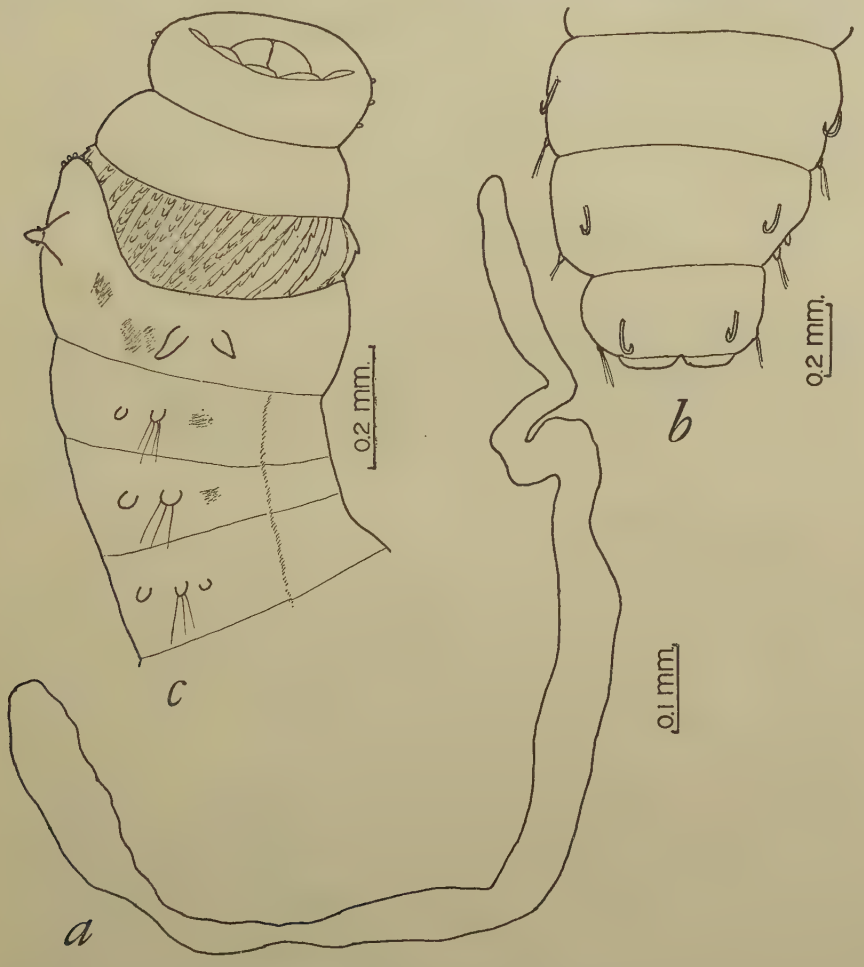

FIGURE 11.—*Cabira incerta:* *a*, general outline of complete specimen; *b*, dorsal view posterior end; *c*, lateral view anterior end with proboscis extended.

jagged spines. Integument mostly smooth, with few scattered papillae. Sometimes pigmented areas dorsal to tentacular cirri and ventral to neuropodia on first 2 setigers (fig. 11*c*).

Distribution: Chesapeake Bay, Va. In 7 fms.

Genus *Sigambra* Müller, 1858

Sigambra Müller, 1858. [Type-species: *S. grubii* Müller, 1858, by monotypy. Gender: feminine.]

The genus *Sigambra* either has been overlooked or has been considered to be indeterminable (Hartman, 1947, p. 483; 1959, p. 195). The original figures and brief description of *S. grubii* from Santa Catharina Island off Brazil seem to be sufficiently good to allow the genus to be retained. I have included on page 182 the figures and description of Müller for *S. grubii*.

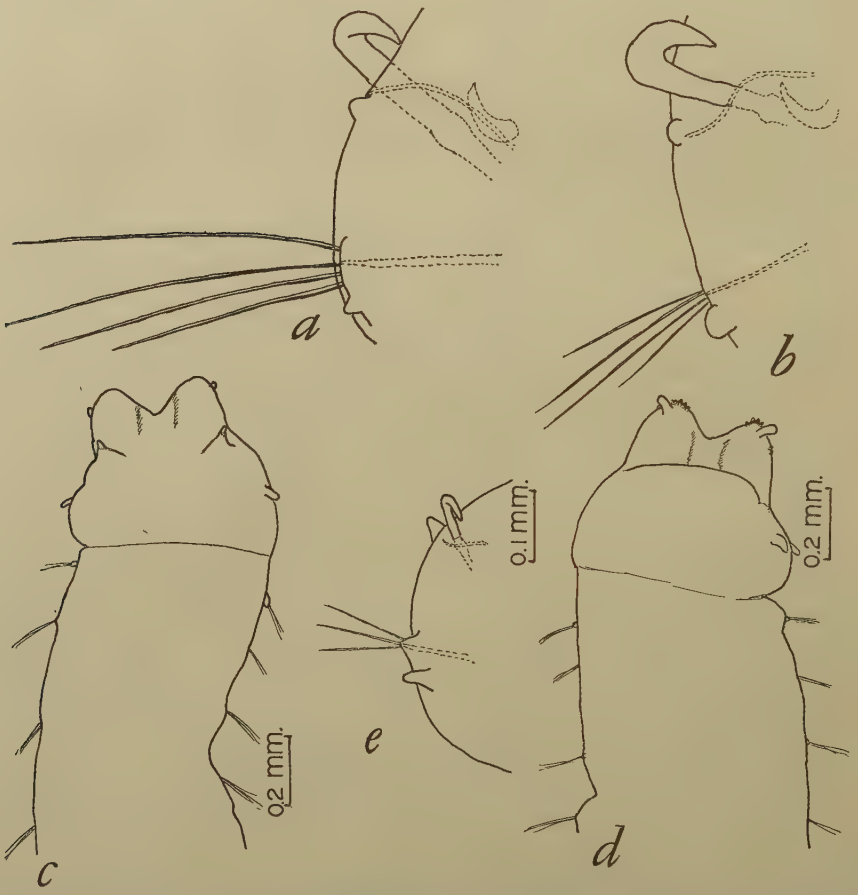

FIGURE 12.—*Cabira incerta:* *a*, parapodium from setiger 8; *b*, same, from setiger 18; *c*, dorsal view anterior end; *d*, ventral view anterior end; *e*, parapodium from setiger 40.

Diagnosis: Body long, flattened, with parapodia deeply cut. Prostomium with 2 biarticulate palps, 3 antennae longer than palps. Tentacular segment achaetous, more or less fused to prostomium and first setigerous segment, with 2 pairs tentacular cirri. First setigerous segment with longer paired dorsal cirri. Parapodia subbiramous. Notopodia with notoacicula and stout emergent hooked setae. Dorsal cirri long, slender, or flattened leaflike, extending beyond neuropodia.

Neuropodia conical, with neuroacicula and simple neurosetae; neurosetae capillary, smooth and spinous. Ventral cirri shorter, subulate. Pygidium with paired long anal cirri. Proboscis unarmed, cylindrical, with distal circlet of large conical papillae or indistinctly papillate. With intestinal caeca. Integument smooth (not papillated), may be areolated or wrinkled.

The following species are herein referred to *Sigambra:*

S. grubii Müller, 1858, p. 214. Santa Catharina Island, Brazil. See page 182.

S. robusta (Ehlers, 1908, p. 59), as *Ancistrosyllis robusta.* South Atlantic Ocean.

S. constricta (Southern, 1921, p. 573), as *Ancistrosyllis constricta.* Chilka Lake, India.

S. tentaculata (Treadwell, 1941, p. 1), as *Ancistrosyllis tentaculata.* Long Island, N.Y. See page 182.

S. bassi (Hartman, 1947, p. 501), as *Ancistrosyllis bassi.* Florida. See page 186.

S. ocellata (Hartmann-Schröder, 1959, p. 109), as *Ancistrosyllis ocellata.* Central America.

S. hanaokai (Kitamori, 1960, p. 1086), as *Ancistrosyllis hanaokai.* Seto-Inland Sea, Japan.

S. parva (Day, 1963, p. 395), as *Ancistrosyllis parva.* South Africa.

S. wassi, new species. Chesapeake Bay. See page 186.

Key to the Species of *Sigambra*

1. Dorsal cirri only slightly longer than ventral cirri. Dorsal hooked setae beginning on setiger 7. Ventral cirri on setiger 2? Very small, young? **S. ocellata**
   Dorsal cirri longer than ventral cirri 2
2. Stout hooked notosetae beginning anterior to setiger 20. Ventral cirri lacking on setiger 2 3
   Stout hooked notosetae beginning posterior to setiger 20 6
3. Hooked setae beginning on setiger 4 4
   Hooked setae beginning on about setiger 14 (11–15) . . . **S. bassi,** p. 186
4. Median antenna longer than lateral antennae. . . . **S. tentaculata,** p. 182
   Antennae subequal 5
5. Longer neurosetae finely spinous basally, with capillary tips; shorter neurosetae wide, coarsely spinous, tapering to very short bare tips . **S. hanaokai**
   Longer neurosetae smooth, capillary; shorter neurosetae coarsely spinous, with capillary tips . . . . . **S. parva**
6. Body constricted at setiger 4. Without ventral cirri on setiger 2. Notopodial hooked setae beginning about setiger 30–40. Dorsal cirri fusiform, tapered. **S. constricta**
   Body not constricted at setiger 4. With ventral cirri on all setigers . . . 7
7. Dorsal cirri fusiform, tapered. Notopodial hooked setae beginning about setiger 70 . . . . . **S. robusta**
   Dorsal cirri wide, flattened, leaflike. Notopodial hooked setae beginning about setiger 23–30 . . . . . **S. wassi,** p. 186

Note: *S. grubii* is omitted from key, since the original description failed to mention on which setiger the hooked setae begin. See page 182.

Sigambra grubii Müller

FIGURE 13

Sigambra grubii Müller, 1858, p. 214, pl. 6, figs. 7–9.

The figures and description have been taken from Müller (freely translated from the German).

Description: Body with numerous short segments. Prostomium indistinct from longer tentacular segment and first setigerous segment, with bilobed frontal part and 2 minute frontal papillae (=biarticulate palps), with 3 occipital antennae, without eyes. Tentacular segment achaetous, with 2 pairs of tentacular cirri. First setigerous segment with upper pair of dorsal cirri very long, about 4 times longer than ventral cirri. Parapodia subbiramous. Notopodium with notoaciculum and single emergent notoseta (setiger on which hooked setae begin not indicated; at least posterior to setiger 3, as indicated by fig. 13*a*); dorsal cirri long, slender, subulate, extending beyond neurosetae. Neuropodium with neuroaciculum and bundle of simple neurosetae. Ventral cirri short, filiform, lacking on setiger 2 (at least not shown in fig. 13*a*). Pygidium with pair of long anal cirri. Proboscis cylindrical, with row of papillae. Intestine with lateral projections in bases of parapodia. Blood yellowish.

Distribution: South Atlantic, Santa Catharina Island off Brazil.

Sigambra tentaculata (Treadwell)

FIGURES 14, 15

Ancistrosyllis tentaculata Treadwell, 1941, p. 1, figs. 1–3.—Hartman, 1963, p. 13; 1965, p. 71.

Material examined: Holotype from Long Island, N.Y., loan from AMNH, no. 2893. York River, Va., mud, November 1960, M. Wass, coll. Chesapeake Bay off Rappahanock River, sand, June 1962, M. Wass, coll. Off Port Aransas, Tex., 27°49′ N., 97°01.6′ W., 5 fms., mud, M. Jones, coll. (AMNH).

Description: Length to 15 mm., width to 2 mm., segments to 91. Body somewhat inflated and widest anteriorly, tapered gradually posteriorly, flattened dorsoventrally, with parapodia deeply cut, as long as body width. Integument smooth, without papillae. Prostomium variable in shape, posterior margin sometimes appearing indented posteriorly and extending on tentacular segment as indicated by Treadwell for the holotype (fig. 14*a*), possibly due to rather shrunken condition of specimen; biarticulate palps with large palpophores indistinctly separated from prostomium, with small button-like to filiform palpostyles; median antenna on posterior part of prostomium, extending far beyond palps; lateral antennae slightly more anterior than median antenna and extending slightly beyond palps; without definite eyes but sometimes with deep irregular pigmented areas lateral

to antennae and crescent-shaped areas posterior to lateral antennae (fig. 15*a*). Tentacular segment longer than following segment, with 2 pairs of tentacular cirri similar to lateral antennae. Dorsal cirri of first setiger longer than following ones, similar to and longer than median antenna.

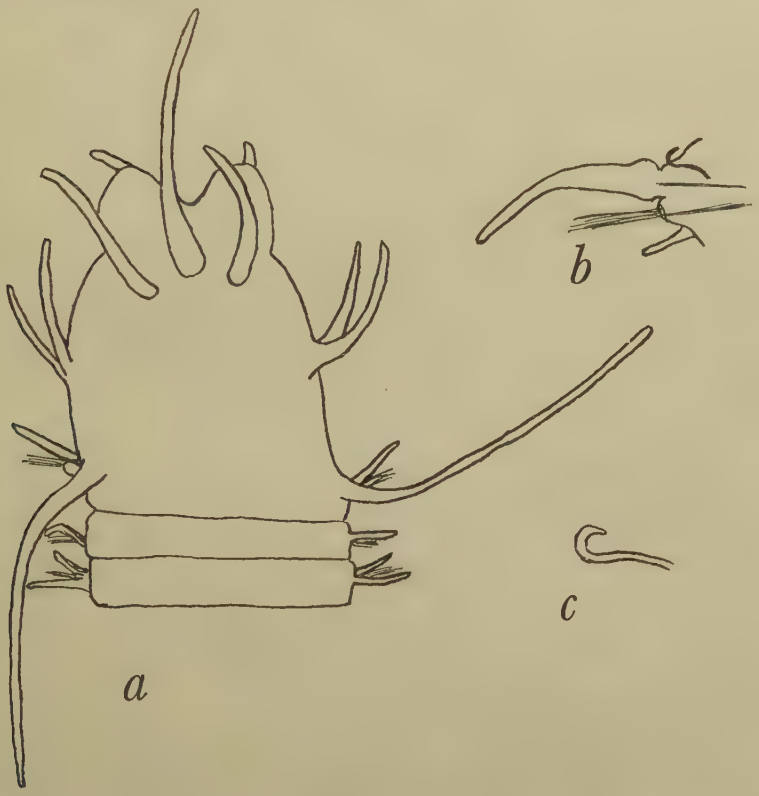

FIGURE 13.—*Sigambra grubii* (figures taken from Müller, 1858): *a*, dorsal view anterior end; *b*, parapodium; *c*, notopodial hooked seta.

Parapodia subbiramous; notopodia low, conical, with notoaciculum curving distally; stout, hooked, emergent notoseta beginning on setiger 4. Dorsal cirri wide basally, tapering distally, extending beyond setal lobes. Neuropodia conical, with neuroaciculum and numerous simple neurosetae. Neurosetae variable in length, longer ones smooth, capillary, shorter ones spinous with fine tips. Ventral cirri slender, subulate, shorter than setal lobes, lacking on setiger 2. Pygidium with 2 long anal cirri. Proboscis with 14 papillae around opening, with additional basal papillae irregularly distributed.

Small specimens apparently of this species from Port Aransas, Tex. (14 to 23 setigerous segments, fig. 15*e*) agree generally with the larger

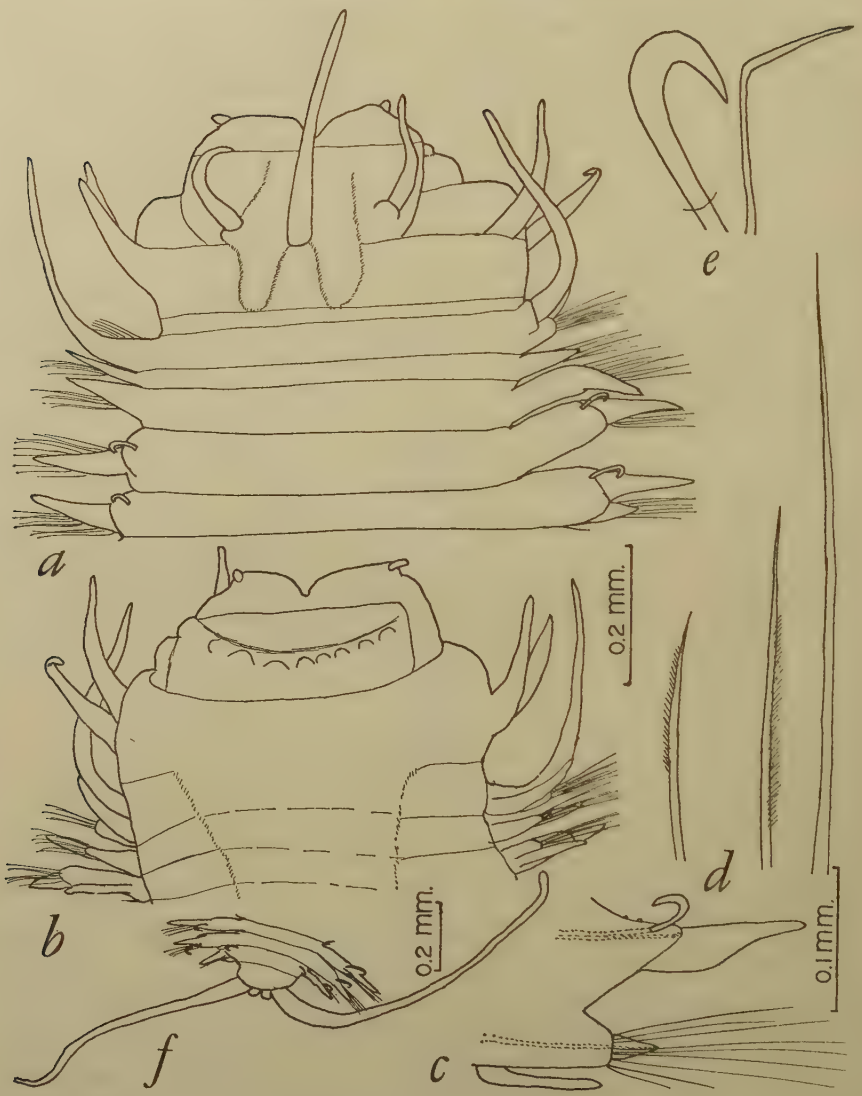

FIGURE 14.—*Sigambra tentaculata* (*a-d*, from holotype from Long Island, N.Y.; *e*, *f*, from specimens from York River): *a*, dorsal view anterior end, proboscis partially extended (specimen rather shrunken, the prostomial area extending on tentacular segment may not be natural); *b*, same, ventral view; *c*, parapodium; *d*, neurosetae; *e*, curved notoaciculum and stout hooked notoseta; *f*, ventral view posterior end.

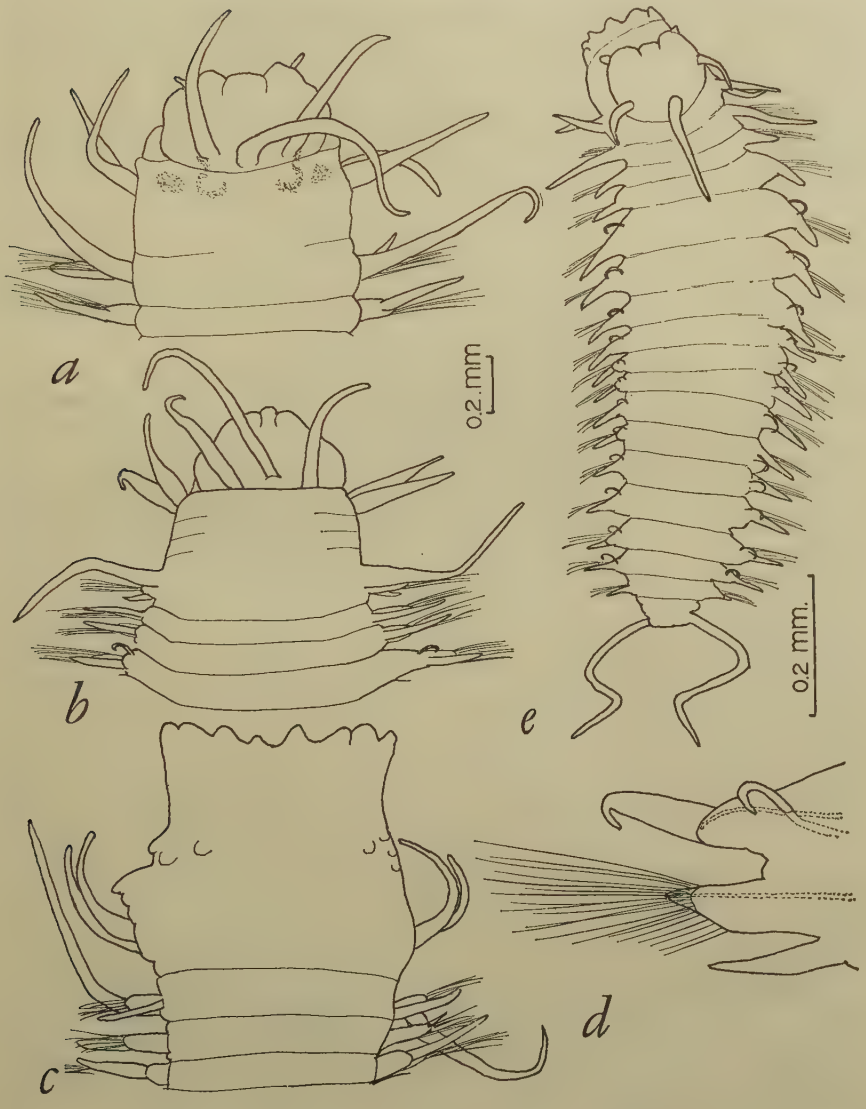

FIGURE 15.—*Sigambra tentaculata* (*a-d*, from specimens from York River; *e*, from specimen from Port Aransas, Tex.): *a*, dorsal view anterior end; *b*, same, from another specimen; *c*, ventral view anterior end, with proboscis extended; *d*, parapodium from middle region; *e*, small specimen of 14 setigerous segments, with proboscis extended.

specimens, including notopodial hooked setae beginning on setiger 4, ventral cirri lacking on setiger 2; segmental intestinal caeca especially prominent.

Distribution: Off New England, Chesapeake Bay, Gulf of Mexico (Texas), northeastern South America, southern California. Intertidal to 2800 fms.

Sigambra bassi (Hartman)

FIGURE 16

Ancistrosyllis bassi Hartman, 1945, p. 15; 1947, p. 501, pl. 61, figs. 1–7; 1951, p. 36, pl. 11, figs. 1–6.

Material examined: Paratype from Florida, N 1713, loan from Olga Hartman (AHF). Seahorse Key, Fla., Oct. 1960, J. Taylor, coll.

Description: Length to 40 mm., width to 2 mm., segments to 146. Body widest anteriorly, tapered posteriorly, flattened dorsoventrally, with parapodia deeply cut, longer than body width. Color (in life): greenish yellow. Integument smooth, without papillae. Prostomium with biarticulate palps with large palpophores indistinctly separated from prostomium and small button-like palpostyles; median antenna on posterior part of prostomium extending far beyond palps; lateral antennae slightly more anterior to median antenna, extending little beyond palps. Tentacular segment longer than following ones, with 2 pairs of tentacular cirri similar to lateral antennae. Dorsal cirri of first setigerous segment long, similar to median antenna. Parapodia subbiramous; notopodia low conical, with notoaciculum curving distally, with stout notopodial hooked notoseta beginning about setiger 14 (11–15); occasionally additional single emergent notoseta, straight or slightly curved (called an aciculum by Hartman); dorsal cirri long, subulate, extending far beyond setal lobes. Neuropodia conical, with neuroaciculum and numerous neurosetae; neurosetae variable in length, all ending in capillary tips, longer ones slender, smooth or faintly serrated, shorter ones serrated; ventral cirri extending slightly beyond setal lobes, lacking on setiger 2. Pygidium with paired long anal cirri. Proboscis cylindrical, with circlet of 14 conical papillae distally.

Distribution: North Carolina, Florida, central and southern California. Intertidal to 18 fms.

Sigambra wassi, new species

FIGURES 17, 18

The species is based on two specimens from Chesapeake Bay, off Rappahanock River, collected by Marvin Wass, holotype (incomplete posteriorly) USNM 30988, 37°37.3′ N., 75°59′ W., sand, 6 fms., June 1962; paratype (broken and in 3 pieces) USNM 30987, 37°37′ N.,

76°11′ W., mud, 7 fms., July 1961. The species is named for Marvin Wass who collected the specimens.

Description: Length of incomplete holotype 45 mm., width 5 mm., segments 107; length of paratype (in 3 pieces) 70 mm., width 4 mm., segments 192. Body large, somewhat flattened, convex dorsally, flattened ventrally with midventral depression, tapered gradually

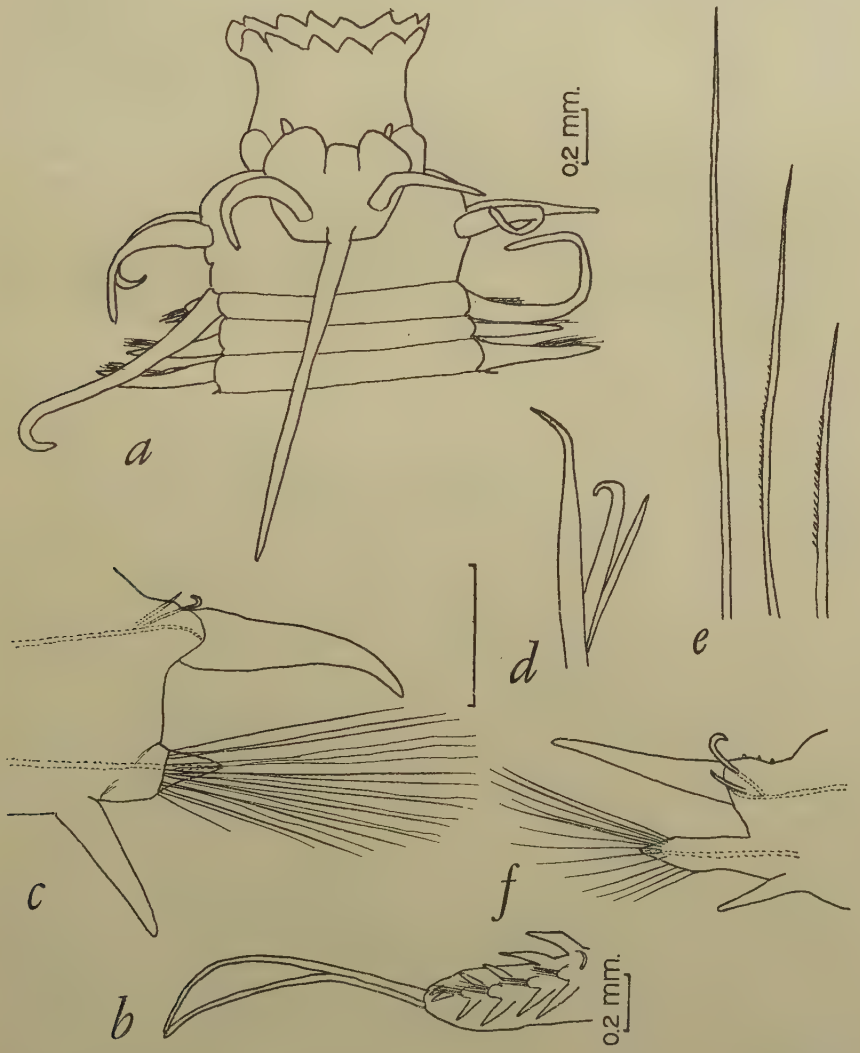

FIGURE 16.—*Sigambra bassi* (*a-e*, from paratype from Florida, AHF 1713; *f*, from specimen from Seahorse Key, Fla.): *a*, dorsal view anterior end; *b*, lateral view posterior end; *c*, middle parapodium; *d*, notoaciculum and notosetae from same; *e*, neurosetae from same; *f*, middle parapodium.

782-216—66——3

posteriorly, with parapodia long (about as long as body width), thick, flattened anteroposteriorly. Integument smooth (not papillated), wrinkled and areolated, especially in anterior and middle regions of body. Prostomium with biarticulate palps consisting of large palp-

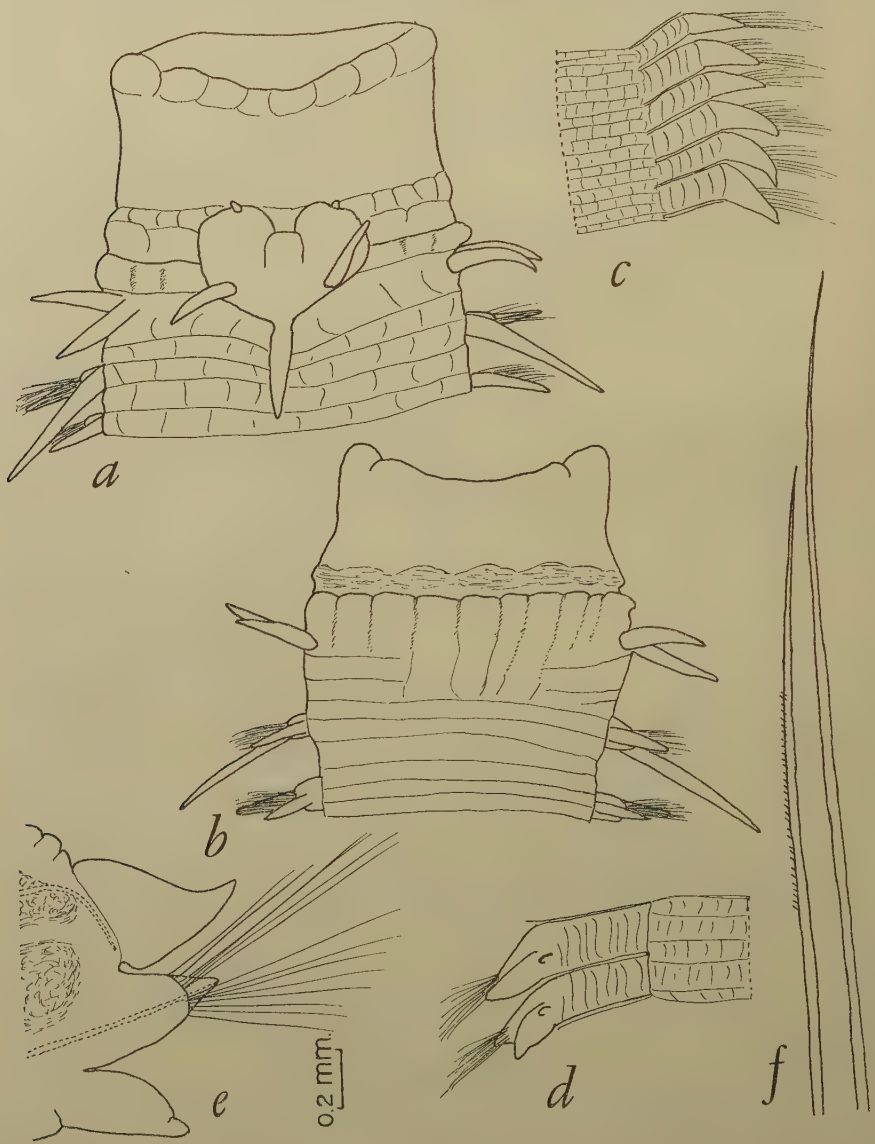

FIGURE 17.—*Sigambra wassi*, new species (from holotype): *a*, dorsal view anterior end with proboscis extended; *b*, same, ventral view; *c*, dorsal view few segments from anterior region; *d*, same, from middle region; *e*, parapodium from setiger 15, with intestinal caeca indicated; *f*, neurosetae from same.

ophores indistinctly set off from rest of prostomium and small palpostyles; medium antenna on posterior part of prostomium, extending to tips of palps; lateral antennae more anterior and slightly shorter than median antenna. Tentacular segment achaetous, longer than following, with 2 pairs of subequal tentacular cirri, similar to median antenna. Dorsal cirri of first setigerous segment longer than following.

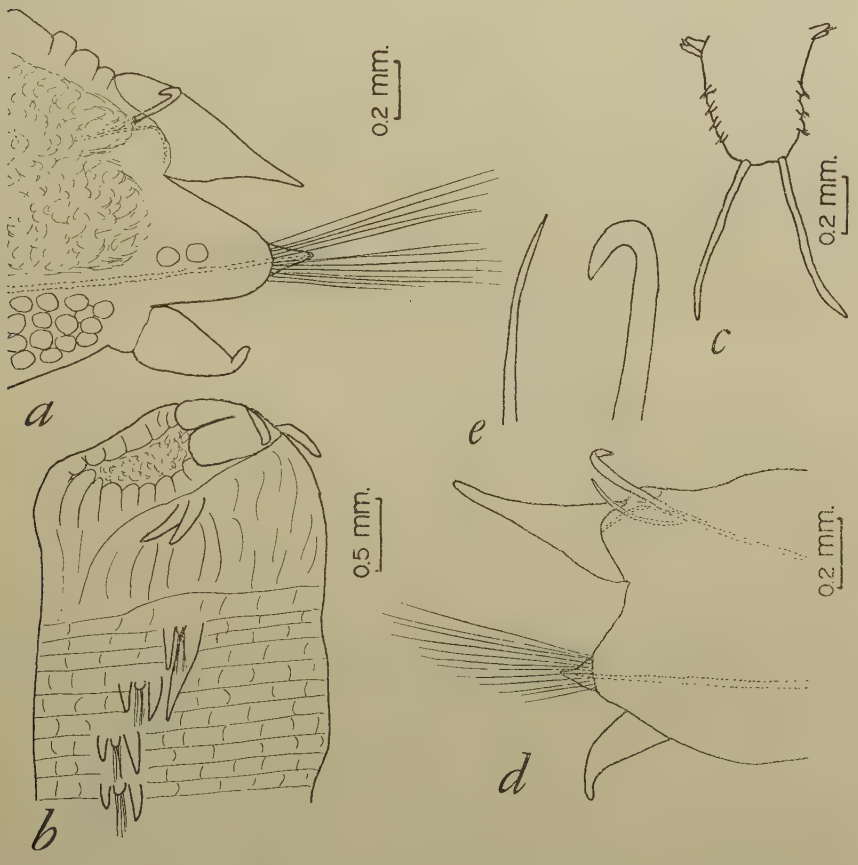

FIGURE 18.—*Sigambra wassi*, new species (*a*, from holotype; *b-e*, from paratype): *a*, parapodium from setiger 50, with intestinal caeca and eggs indicated; *b*, lateral view anterior end; *c*, dorsal view posterior end; *d*, parapodium from posterior region; *e*, notosetae from same.

Parapodia subiramous, as long as body width, thick, with large intestinal dark caeca and with eggs in base (in holotype). Notopodial lobe low, indistinct, with notoacicula curving distally, with emergent acicular seta visible externally about setiger 25 (23/25 in holotype, 30/31 in paratype); in addition, with extra single curved pointed

notoseta in posterior segments (figs. 18*d,e*). Dorsal cirri large, flattened, leaflike, wide basally, tapering distally, extending beyond neuropodial lobes. Neuropodium conical with neuroaciculum and numerous silky neurosetae. Neurosetae simple, shorter and coarsely spinous to longer and faintly spinous, all tapering to capillary tips. Ventral cirri beginning on setiger 1, present on all setigers, subulate, slightly shorter than dorsal cirri. Pygidium with 2 long anal cirri. Proboscis cylindrical, with indefinite papillae around opening and with irregular papillated area basally.

Remarks: *S. wassi* superficially resembles the figures given for *Otopsis longipes* Ditlevsen, both being large, flattened, with integument wrinkled and folded, with dorsal and ventral cirri large, lamelliform and with numerous capillary setae. They differ in the following characters:

	Otopsis longipes Ditlevsen	*Sigambra wassi*, new species
Segment I:	Tentacular segment achaetous, with 2 pairs of subequal tentacular cirri	Same
Segment II:	Second tentacular segment achaetous with 1 pair of tentacular cirri	First setigerous segment with long dorsal cirri and shorter ventral cirri
Segment III:	First setigerous segment with dorsal and ventral cirri	Second setigerous segment
Notopodia:	With 2 notoacicula, without notosetae	With single notoaciculum and emergent hooked notoseta beginning on setiger 23–31

S. wassi differs from the other species of *Sigambra* as indicated in the key on page 181.

Distribution: Chesapeake Bay, Va. In 6–7 fms.

Genus *Synelmis* Chamberlin, 1919

Synelmis Chamberlin, 1919. [Type-species: *S. simplex* Chamberlin, 1919, by original designation and monotypy; = *S. albini* (Langerhans, 1881). Gender: neuter.]

Kynephorus Ehlers, 1920. [Type-species: *K. inermis* Ehlers, 1920, by monotypy; = *S. albini* (Langerhans, 1881). Gender: masculine.]

Glyphohesione Friedrich, 1950. [Type-species: *G. klatti* Friedrich, 1950, by monotypy. Gender: feminine.]

Diagnosis: Body long, subcylindrical, stiff, wiry, with lateral parapodia sharply marked off from body. Prostomium small, with paired biarticulate palps, 3 antennae. Tentacular segment achaetous, with 2 pairs of tentacular cirri. Parapodia subbiramous. Notopodia with notoacicula and stout, emergent, straight or slightly curved,

acicular setae (not hooked); dorsal cirri short, subulate. Neuropodia cylindrical, with neuroacicula and simple neurosetae; neurosetae capillary, limbate; ventral cirri short, subulate. Pygidium with paired short anal cirri. Proboscis unarmed, cylindrical. Without intestinal caeca. Integument smooth, with thick, highly iridescent cuticle, not papillated or areolated.

A single species has previously been referred to *Synelmis*, *S. simplex* Chamberlin, 1919, p. 177. Tuamotu Islands, South Pacific. Herein referred to *S. albini* (Langerhans), see below.

A single species has previously been referred to *Kynephorus*, *K. inermis* Ehlers, 1920, p. 27. Amboina, Indonesia. Herein referred to *S. albini* (Langerhans), see below.

A single species has been described previously under *Glyphohesione*, *G. klatti* Friedrich, 1950, p. 169. Off Helgoland, North Sea. See Eliason, 1962, p. 29, as *Ancistrosyllis klatti*. Herein referred to *Synelmis*, perhaps young of *S. albini*?

Other species were described under *Ancistrosyllis* and are being referred to *Synelmis albini*. See below and page 165.

Key to the Species of *Synelmis*

1. Dorsal cirri of first setiger similar to following. Dorsal and ventral cirr subequal . . . . . **S. albin**
   Dorsal cirri of first setiger about 2 times longer than following. Dorsal cirr longer than ventral cirri, extending beyond parapodial lobes . . **S. klatt**

Synelmis albini (Langerhans)

FIGURES 19–21

Ancistrosyllis albini Langerhans, 1881, p. 107, fig. 16, a–e.—Hartman, 1965, p. 70.
Synelmis simplex Chamberlin, 1919, p. 177, pl. 28, figs. 1–5.
Ancistrosyllis rigida Fauvel, 1919, p. 337, fig. 1, a–e; 1932, p. 64; 1953, p. 7.—Augener, 1927, p. 50.—Hartman, 1947, p. 498, pl. 62, figs. 1–7; 1954, p. 629.
Kynephorus inermis Ehlers, 1920, p. 27, pl. 3, figs. 1–9.
Ancistrosyllis gracilis Hessle, 1925, p. 34, fig. 12.
Ancistrosyllis gorgonensis Monro, 1933a, p. 26, fig. 12, a–d.

Remarks: *Ancistrosyllis albini*, described by Langerhans in 1881 from the Canary Islands, was evidently overlooked by Chamberlin, 1919 (*Synelmis simplex*), Fauvel, 1919 (*Ancistrosyllis rigida*), and Ehlers, 1920 (*Kynephorus inermis*). Augener, 1927, synonomized *K. inermis* with *A. rigida*. He also suggested that both *inermis* and *rigida* might well be referred to *A. albini* and that the apparent differences could be due to preservation, since *A. albini* was described and figured from a living specimen and not contracted due to preservation, as in the specimens described by the other authors. Hessle, 1925 (*A. gracilis*) and Monro, 1933a (*A. gorgonensis*) indicated that their respective species were close to *A. rigida* and *A. albini*. Hartman,

1947, referred *A. gorgonensis* to *A. rigida*. The tubercles on the cirri of *A. gracilis*, mentioned and figured by Hessle, appear to be internal structures and not external papillae as in some other pilargids. The presence or absence of shorter neuropodial forked setae is not a good character, since the forked setae appear to be formed by fracture and splitting of the longer neurosetae; thus they are variable in occurrence and appearance.

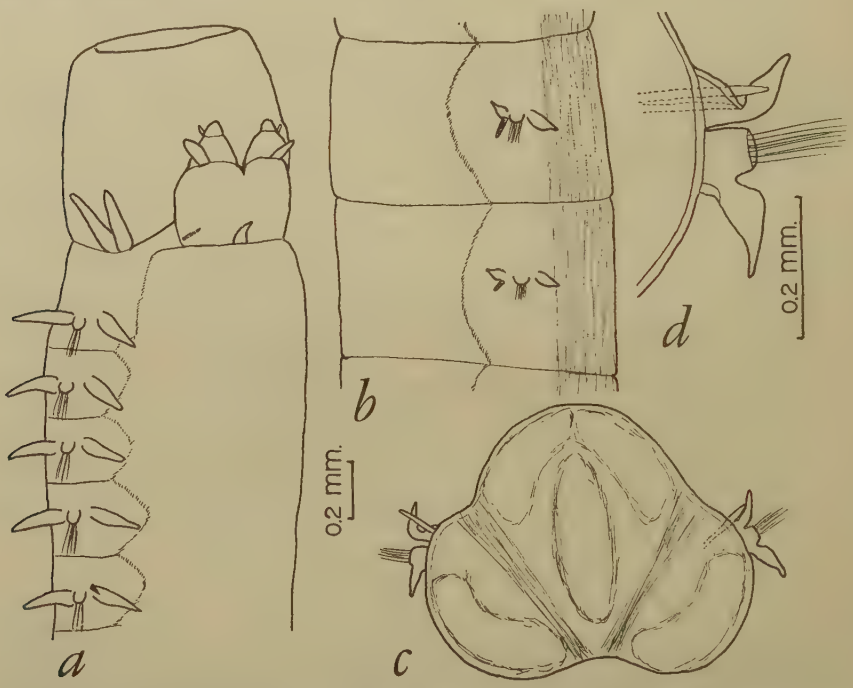

FIGURE 19.—*Synelmis albini* (from specimen from Antigua): *a*, dorsolateral view anterior end, with proboscis partially extended; *b*, lateral view segments 49–50; *c*, outline of cross section in region of setiger 50; *d*, parapodium from same, the thick cuticle shown.

Material examined: Holotype and paratype of *Synelmis simplex* Chamberlin, Tuamotu Islands, South Pacific, USNM 19480, 19481. Saipan, Marshall Islands, Central Pacific. Ft. Barclay, English Harbor, Antigua, Barbados-Antigua Expedition, 1918. Dry Tortugas, Fl., 1914 (AMNH). Old Tampa Bay, Fla., January 1959, M. L. Jones (4 small spec.; AMNH).

Description: Length to 60 mm., width to 1.5 mm., segments to 170. Body elongate, subcylindrical, tapered posteriorly, segmental grooves indistinct anterodorsally, with parapodia distinctly set off from body, having general aspect of a goniadid (may have distinct midventral and dorsolateral grooves when preserved, as in some opheliids, fig. 19*c*). Prostomium with pair of biarticulate palps sometimes turned ven-

trally; palpophores large, oval; palpostyles small, oval, sometimes retracted within palpophores; with additional ventrolateral papilla on palpostyles; with 3 short antennae, lateral pair and posterior median;

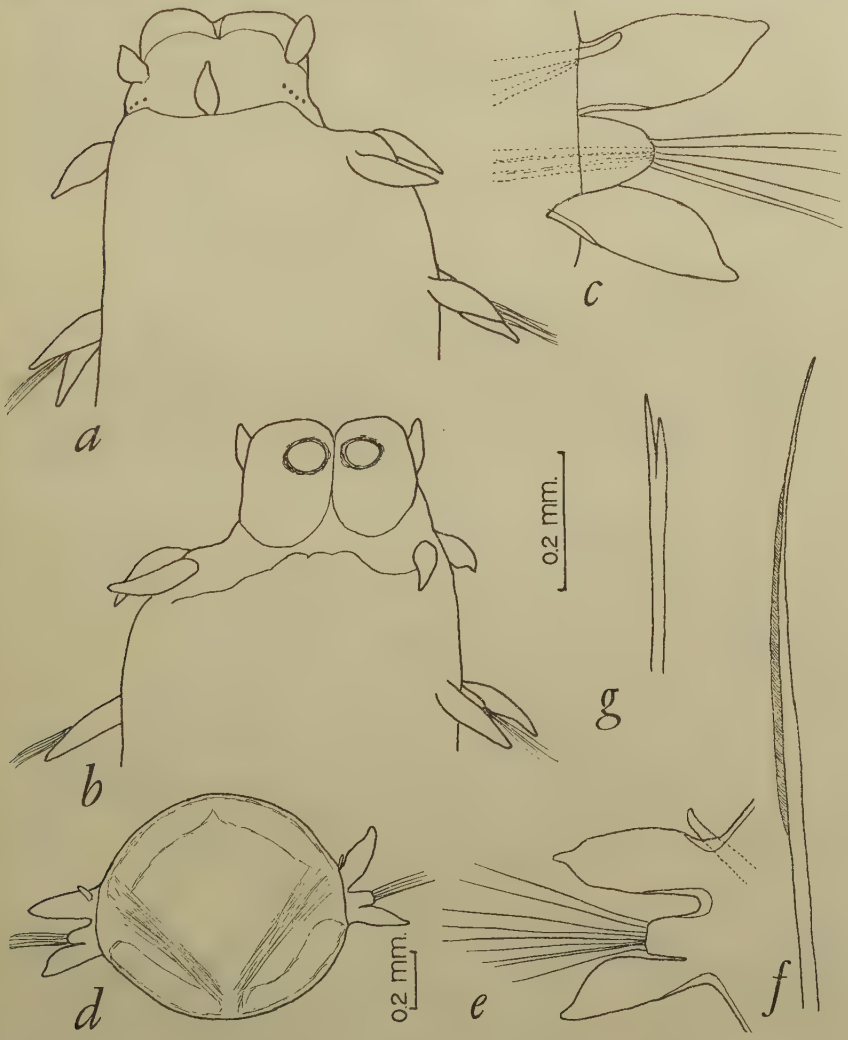

FIGURE 20.—*Synelmis albini* (*a-b*, from specimen from Saipan; *c-g*, from specimen from Dry Tortugas, Fla.): *a*, dorsal view anterior end; *b*, ventral view same, the palpostyles retracted within palpophores; *c*, parapodium from setiger 50; *d*, outline of cross section near posterior end; *e*, parapodium from same, the thick cuticle shown; *f*, neuroseta; *g*, forked neuroseta.

with pair of posterior eyes, each 2–4 contiguous spots. Tentacular segment prominent, overhanging prostomium and forming ventral lip, achaetous, with 2 pairs of subequal tentacular cirri. Dorsal cirri of

first setiger similar to following. Parapodia subbiramous, with dorsal and ventral cirri subequal, subulate to oval with acuminate tips. Notopodia with 1–2 notoacicula and stout, emergent, straight or slightly bent, acicular notosetae, beginning on setiger 5–20 (difficult to detect, not emergent at first). Neuropodia short, cylindrical, with 3 neuroacicula and bundle of neurosetae. Neurosetae limbate, tapering to capillary tips, limbate part sometimes appearing frayed or finely spinous (they break easily and the shorter broken setae may appear to

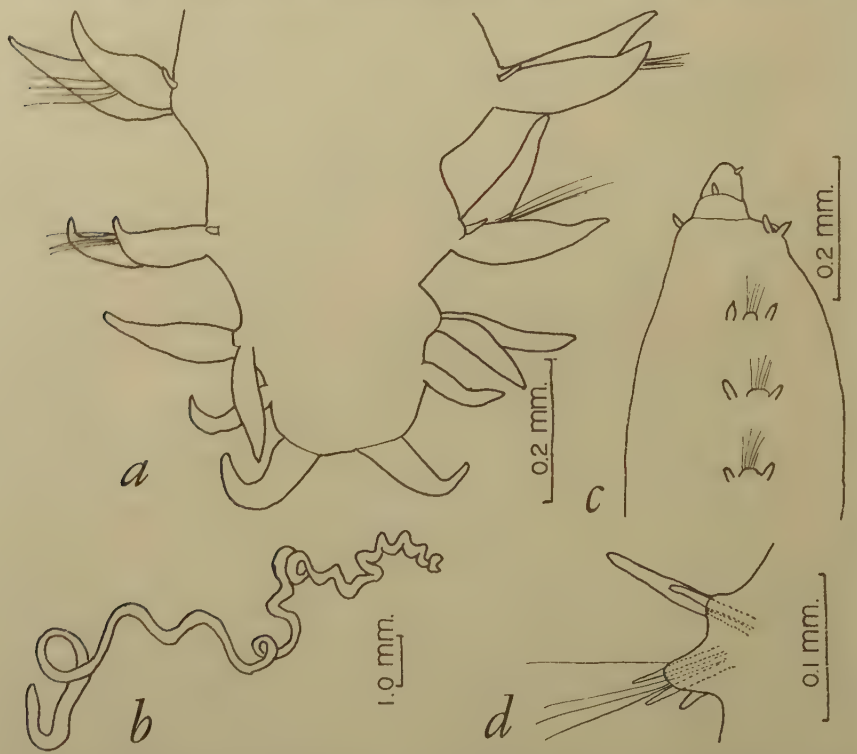

FIGURE 21.—*Synelmis albini* (*a*, from specimen from Dry Tortugas, Fla.; *b–d*, from small specimen from Old Tampa Bay, Fla.): *a*, dorsal view posterior end; *b*, outline of young specimen; *c*, lateral view anterior end; *d*, posterior parapodium of same (setiger 75), with two emergent neuroacicula.

be forked, fig. 20*g*). Pygidium rounded, with pair of anal cirri similar to dorsal and ventral cirri. Proboscis long, cylindrical, muscular, without papillae. Without intestinal caeca. Extra well-developed, dorsolateral and ventrolateral longitudinal muscles and diagonal muscles (figs. 19*c*; 20*d*). Integument with thick, smooth, iridescent cuticle extending on bases of dorsal and ventral cirri, without papillae. Color (preserved): yellowish to reddish, dark brown, iridescent, with reddish glandular areas at bases of parapodia.

Small specimens from Old Tampa Bay, Fla. (86 segments, 22 mm. long, 0.3 mm. wide, figs. 21*b-d*) showed the dorsal cirri longer, digitiform; neuropodia with 3 acicula, 2 of which project beyond setal lobe, with slender capillary neurosetae.

Distribution: Widespread in tropical and subtropical waters. North Pacific (off Japan, southern to Lower California, Panama), Central and South Pacific (Marshall Islands, Tuamotu Islands, Gambier Islands), Red Sea, Indian Ocean, North Atlantic (Canary Islands, West Indies) Gulf of Mexico (Florida, Dry Tortugas). Intertidal to 1388 fms.

Genus *Harpochaeta* Korschelt, 1893

Harpochaeta Korschelt, 1893. [Type-species: *H. cingulata* Korschelt, 1893, by monotypy. Trieste, Italy, in plankton. Gender: feminine.]

Diagnosis: Body elongated, with segmentation well marked. Prostomium rounded, with paired ventral palpostyles, 3 antennae and 2 eyes. Tentacular segment with 2 pairs of tentacular cirri. Parapodia subbiramous. Notopodia with dorsal cirri and emergent, notopodial, hooked setae beginning at about setiger 5. Neuropodia conical, with capillary, simple neurosetae, with ventral cirri. Tentacular, dorsal and ventral cirri jointed. Pair of short anal cirri. Larval organs consisting of prototroch, telotroch, larval organs in prostomium and pygidium.

Remarks: *Harpochaeta* has been referred by some authors to *Ancistrosyllis*. However until the adult of the only known species, *H. cingulata*, has been identified, it is difficult to know to what genus *Harpochaeta* should be referred. Of the known genera, it might be referred to *Sigambra* Müller, 1858, *Ancistrosyllis* McIntosh, 1879, or *Cabira* Webster, 1879.

Genus *Loandalia* Monro, 1963

Loandalia Monro, 1936. [Type-species: *L. aberrans* Monro, 1936, p. 193, by monotypy. Gender: feminine.]

?*Hermundura* Müller, 1858. [Type-species: *H. tricuspis* Müller, 1858, p. 216, by monotypy. Gender: feminine. Brazil.]

?*Telehsapia* Fauvel, 1932. [Type-species: *T. annandalei* Fauvel, 1932, p. 251, by monotypy. Gender: feminine. Gulf of Siam.]

Diagnosis: Body long, slender, subcylindrical, tapering posteriorly; anterior region (first 5–10 setigers) inflated to form a "thorax," with conical parapodia projecting from body (not deeply cut). Prostomium very reduced, inconspicuous, with reduced biarticulate palps, without antennae. Tentacular segment achaetous, without tentacular cirri. Parapodia subbiramous. Notopodia low or absent, with projecting stout notoacicula, with few additional slender

notosetae. Without dorsal cirri. Neuropodia conical, with small, terminal neuropodial cirri, or "ventral cirri" (not in usual position for ventral cirri), with neuroacicula and neurosetae. Neurosetae simple, geniculate, or curved, with expanded blades and numerous transverse rows of teeth. Pygidial lobe rounded or concave platelike, with 3 small cirri, a lateral pair and midventral one. Proboscis unarmed, long, muscular, subclavate, with circlet of papillae around opening. Without intestinal caeca. Integument smooth or areolated (not papillated).

The following species have been referred previously to *Loandalia* Monro:

L. aberrans Monro, 1936, p. 193. Angola, South West Africa.
L. fauveli Berkeley and Berkeley, 1941, p. 30. Southern California. See below.
L. americana Hartman, 1947, p. 506. Gulf of Mexico, Southern California. Referred to *L. fauveli*, see below.
L. gracilis Hartmann-Schröder, 1959, p. 112. El Salvador, Central America. Referred to *L. fauveli*, see below.
L. capensis Day, 1963, p. 396. South Africa. Referred to *Cabira*, see page 178.
L. indica Thomas, 1963, p. 29. Arabian Sea. Questionable species (the part described as an anterior end appears to be a broken fragment).

Key to the Species of *Loandalia*

1. With ventral filiform branchiae beginning about setiger 54.
L. aberrans Monro
Without ventral filiform branchiae . . . **L. fauveli** Berkeley and Berkeley

Loandalia fauveli Berkeley and Berkeley

FIGURES 22, 23

Loandalia fauveli Berkeley and Berkeley, 1941, p. 30, figs. 4–6.—Hartman, 1960, p. 89.
Loandalia americana Hartman, 1947, p. 506, pl. 63, figs. 1–7; 1951, p. 39, pl. 12, figs. 1–3.
Loandalia gracilis Hartmann-Schröder, 1959, p. 112, figs. 51–57 (young?).

Material examined: Holotype of *L. fauveli* from southern California, loan from Cyril Berkeley. Two paratypes of *L. americana* from Biloxi, Miss., loan from Olga Hartman (AHF). Gulf County, Cape San Blas, Fla.; Suwannee, Dixie County, Fla.; Keaton Beach, Taylor County, Fla.; near Lynn Haven, Bay County, Fla., subtidal grass flats, loan from Meredith Jones (AMNH). Pensacola, Fla., 1885. Boat dredge in Mississippi Sound, 9 miles off Bayou, February 1898. Davis Bay, Miss., 1949, brackish water.

Description: Length to 125 mm., width to 3.3 mm., segments to 300. Body subcylindrical with inflated anterior region of 5 or so setigers (this region may be areolated, especially in larger specimens). Prosto-

mium small, inconspicuous, subtriangular, with palpophores indistinct from rest of prostomium, with small knoblike palpostyles which may be partially telescoped within palpophores. Small notopodia begin-

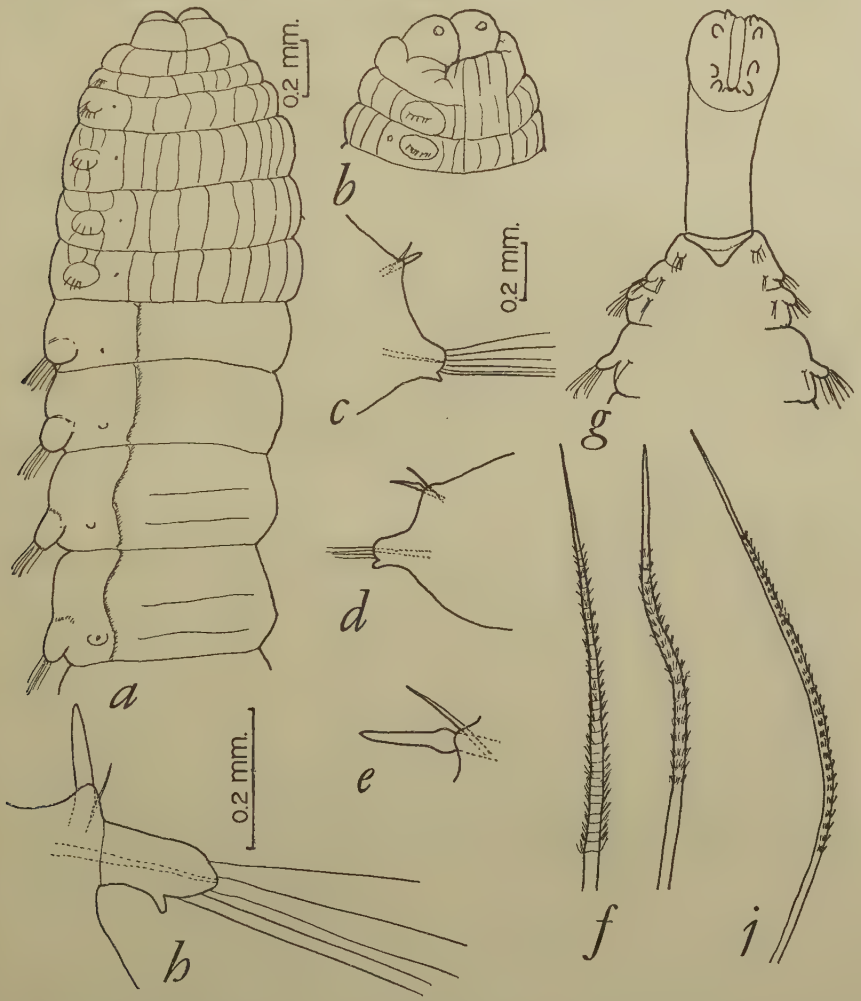

FIGURE 22.—*Loandalia fauveli* (*a–f*, from holotype of *L. fauveli*; *g*, from paratype of *L. americana*, large specimen; *h*, *i*, from small specimen of *L. fauveli* from Bay County, Fla.): *a*, dorsolateral view anterior end; *b*, ventrolateral view anterior end; *c*, parapodium from middle region; *d*, same, from posterior end; *e*, notopodium, enlarged; *f*, neurosetae; *g*, dorsal view anterior end, with proboscis extended; *h*, parapodium; *i*, neuroseta.

ning on setiger 2 (may be inconspicuous and easily overlooked in anterior areolated region of larger specimens; overlooked by Berkeley for *L. fauveli*); notopodia consisting of slightly projecting lobe with stout crystal-clear notoaciculum; tips of notoacicula projecting from

about setiger 8 (larger specimens) to 40 (smaller specimens) on; with additional slender notosetae, 2–3 in number (anterior 7 or so setigers) or 1–0. Neuropodia cylindro-conical with small "ventral cirri" on ventral side of distal ends, with moderate number of neurosetae (to about 15). Neurosetae simple, geniculate or curved, tapering to fine

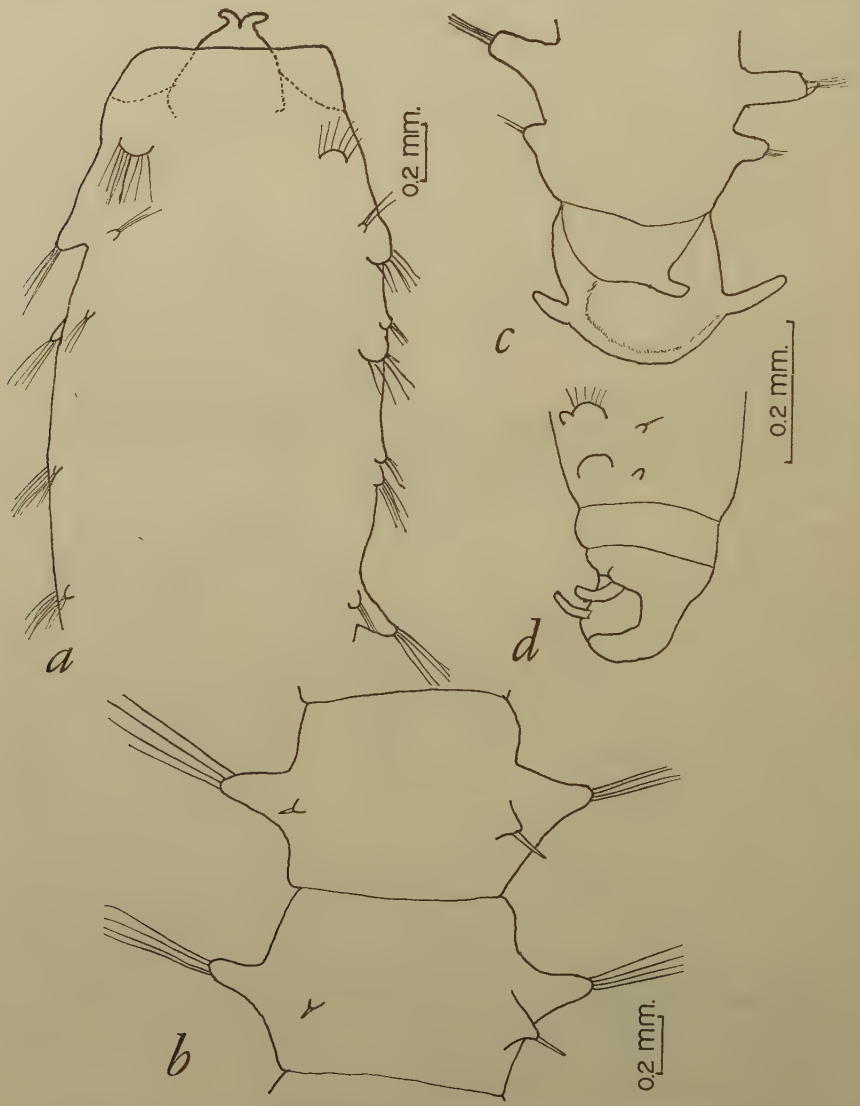

FIGURE 23.—*Loandalia fauveli* (from paratype of *L. americana*, small specimen): *a*, dorsal view anterior end with prostomium partially retracted within tentacular segment; *b*, two segments from posterior third, dorsal view; *c*, ventral view posterior end; *d*, lateral view posterior end.

tips, with numerous transverse spinous rows. Pygidium a rounded anal plate, concave ventrally, with pair of lateral cirri and midventral one. Proboscis long, subcylindrical, clavate, with circlet of 8 large papillae. Without intestinal caeca.

Distribution: Southern California, Central America, Gulf of Mexico (Florida, Mississippi, Louisiana). In low water to 625 fms.

Family Polynoidae

The pelagic polynoid upon which this part of the study was based is the holotype of *Ancistrosyllis longicirrata*, taken from the plankton off Peru and reported by Berkeley and Berkeley in 1961, with the suggestion that it might be a juvenile of a bottom-living form. They erroneously put it with the pilargids rather than with the polynoids. Mr. Cyril Berkeley very kindly sent me the holotype and has allowed me to study it and make additions and corrections to the original description. It can be referred to *Podarmus ploa* Chamberlin, a pelagic form described from off Easter Island in the South Pacific. The holotype of the latter species is in the U.S. National Museum but it is in very poor condition, being dark, brittle, and covered with crystals, making it difficult to study many of the structures; according to the original description by Chamberlin, it had been fixed in Fleming's fluid, causing a blackening of the tissues. Coloration and the poor condition of the specimen could account for Chamberlin's failure to mention some features. The elytra are missing on the specimens from both collections. Both are probably juveniles and not fully developed (30 segments, 14 pairs elytrophores for *P. ploa;* 35 segments, 16 pairs elytrophores for *A longicirrata*). *Podarmus atlanticus* Monro is herein referred to *P. ploa* since the setal differences indicated by Monro appear to be within the range of variation for the species; the specimen was perhaps fully developed (45 segments, 18 pairs elytrophores).

Genus *Podarmus* Chamberlin, 1919, emended

Podarmus Chamberlin, 1919. [Type-species: *P. ploa* Chamberlin, 1919, by original designation and monotypy. Gender: masculine.]

Diagnosis: Colorless and transparent, pelagic. Body short, tapering posteriorly, composed of relatively few segments (30–45). Prostomium bilobed, rounded, without cephalic peaks; 3 long antennae with ceratophores distinct, median antenna inserted in anterior notch, lateral antennae inserted slightly ventrally (subterminally, not lepidonotoid or halosydnoid), with paired palps. Tentacular segment achaetous, with 2 pairs of long tentacular cirri. With pair of long ventral cirri or buccal cirri on segment 2 (first setigerous). Parapodia

subbiramous. Notopodia small, with notoacicula only. Neuropodia elongated, with presetal and postsetal lips. Neurosetae of 2 kinds: 1) long, slender, with coarse serrations basally, with capillary tips; 2) shorter, with few serrations and slightly hooked tips. Elytral pairs 14–18 (often missing); elytrophores on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29 (14 pairs, as in holotype *P. ploa*), 32, 35 (16 pairs, as in holotype *A. longicirrata*), 38?, 41? (18 pairs, as in *P. atlanticus;* exact arrangement not stated). Dorsal cirri on non-elytra-bearing segments long, tapered. Ventral cirri short, tapered. Pair of long anal cirri. Pharynx of usual polynoid type, with jaws and circlet of 18 papillae. With clavate glandular processes at bases of ventral cirri and at ventral bases of parapodia; with row of glandular prominences on ventroposterior borders of neuropodia and large glandular structures in upper part of neuropodia.

Podarmus ploa Chamberlin

FIGURES 24–26

Podarmus ploa Chamberlin, 1919, p. 46, pl. 6, fig. 6, pl. 7, figs. 1, 2.
Podarmus atlanticus Monro, 1930, p. 42, fig. 7.—Støp-Bowitz, 1948, p. 13, fig. 9.
Ancistrosyllis longicirrata Berkeley and Berkeley, 1961, p. 658, figs. 5–7.

Material examined: Holotype of *Podarmus ploa* from off Easter Island, South Pacific, from plankton (USNM 19458). Holotype of *Ancistrosyllis longicirrata* Berkeley and Berkeley from off Peru, South Pacific, from plankton (loan from Cyril Berkeley, now deposited in USNM 30990).

Description: Length to 13 mm., width including setae to 4 mm., segments to 45. Body widest toward anterior region, tapered anteriorly and posteriorly, convex dorsally, flattened ventrally, with parapodia very long, length exceeding width of body. Transparent. Prostomium bilobed, rounded anteriorly, without cephalic peaks. Median antenna with ceratophore in anterior notch, with style long, slender, tapering, smooth; lateral antennae with ceratophores at nearly same level as median antenna but inserted slightly ventrally, with styles similar to but shorter than median antenna; with pair of thick, contractile, tapering palps (thus variable in length), with pair of glandular clavate processes below palps; with 2 pairs of light-colored eyes, anterior pair lateral in position, posterior pair posterodorsal. Tentacular segment achaetous, lateral to prostomium, with 2 pairs of tentacular cirri on distinct ceratophores, lower pair similar to medium antenna, upper pair longer. First setigerous segment (segment 2 or buccal segment) with first pair of elytrophores and middorsal semicircular flap extending on posterior part of prostomium; ventrally it forms posterior lip of mouth, with extra long ventral cirri

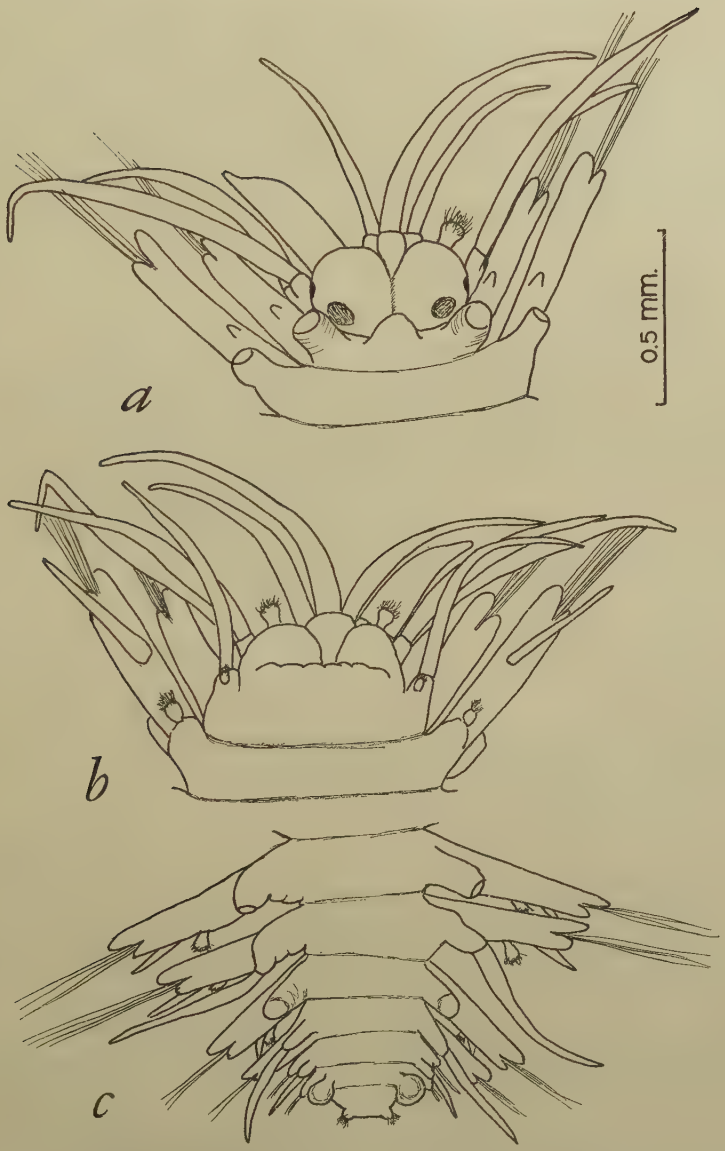

FIGURE 24.—*Podarmus ploa* (from holotype of *Ancistrosyllis longicirrata*): *a*, dorsal view prostomium and first 3 segments, elytra, dorsal cirri, and right palp missing; *b*, same, ventral view; *c*, dorsal view posterior end (segments 30–35), first dorsal cirri, elytra on segments 32 and 35, and anal cirri missing.

(buccal cirri) similar to lateral antennae and with oval glandular organs on ventral sides of cirrophores.

Elytra usually missing; according to Støp-Bowitz, rather large, translucent, with small warty papillae; elytrophores cylindrical, up to 18 pairs when fully formed, arranged as indicated in generic diagnosis. Dorsal cirri with cylindrical cirrophores; styles long, tapering, smooth, extending to tips of setae. Ventral cirri in middle of neuropodial

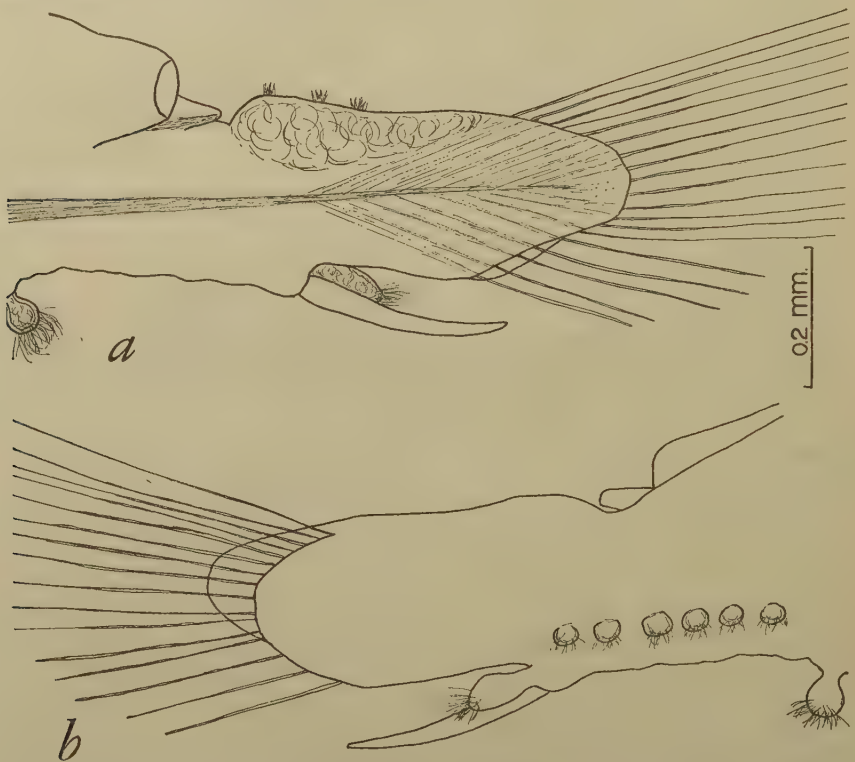

FIGURE 25.—*Podarmus ploa*: *a*, middle parapodium of cirrigerous segment, anterior view, style of dorsal cirrus missing (tips of neurosetae not shown; acicula and glandular areas indicated); *b*, same, posterior view.

lobes, tapering, smooth, shorter than setal lobes. Parapodia subbiramous; notopodia short, conical, on anterodorsal side of neuropodia, with notoacicula only, without notosetae. Neuropodial lobe elongated, flattened anteroposteriorly, split terminally into longer presetal and shorter postsetal lips, with elongated inflated glandular areas distal to notopodial lobe, with stout neuroaciculum extending into postsetal lip, with fan-shaped bundle of neurosetae. Neurosetae of 2 kinds: lower ones shorter, stouter, with a few heavy widely spaced spinous rows (3–4), with tips slightly hooked, sometimes

slightly bidentate; middle and upper setae more slender, enlarged basal parts with few heavier spinous rows and low ridges, with terminal whiplike tips.

Parapodial glandular structures present, containing large cells and giving off material having appearance of long cilia when preserved (fig. 25*a*): (1), large stalked papillae posterior to bases of ven-

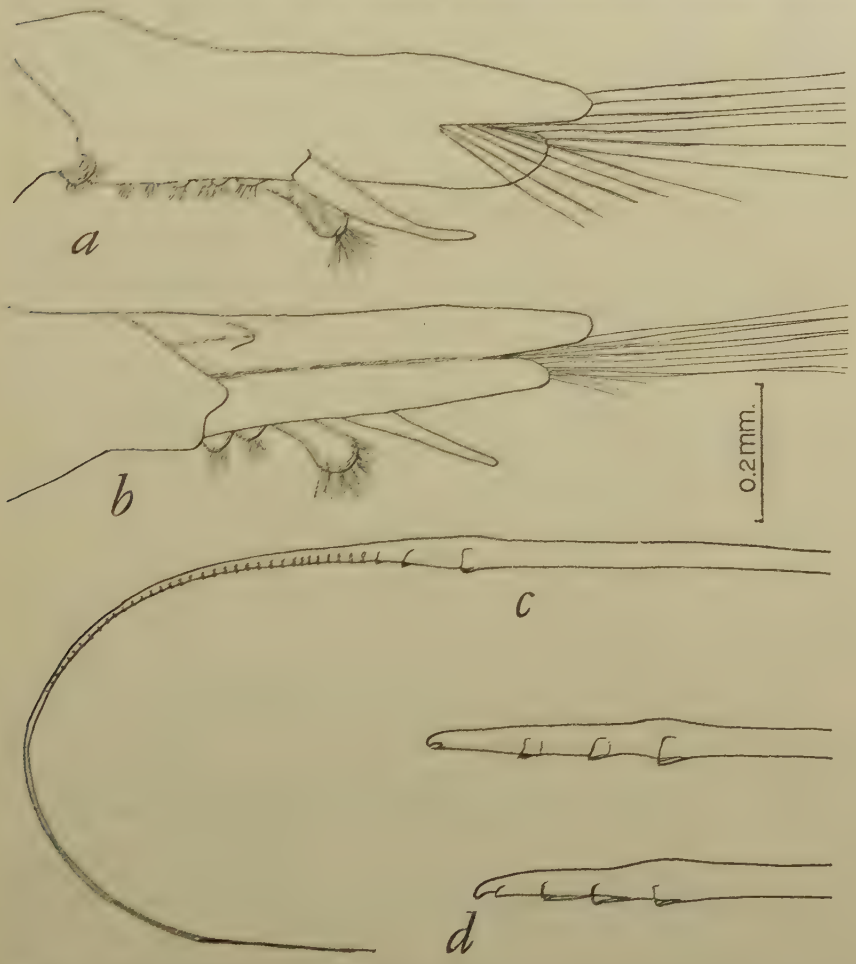

FIGURE 26. *Podarmus ploa*: *a*, middle parapodium of cirrigerous segment, ventral view (tips of neurosetae not shown); *b*, same, dorsal view, style of dorsal cirrus missing (acicula indicated); *c*, upper neuroseta; *d*, lower neurosetae.

tral cirri, beginning on setiger 4–5 and continuing posteriorly (= cylindrical processes, Chamberlin; =clavate processes or enlarged genito-nephridial papillae, Monro; =stalked ciliated papillae, Berkeley); (2) smaller oval papillae on ventral basal parts of parapodia on

all setigers, below palps, and lateral to anal cirri; (3) row of circular areas (about 6) on posteroventral sides of parapodia between bases of ventral cirri and bases of parapodia (= row of ciliated prominences, Berkeley); (4) elongated areas in dorsal part of neuropodia distal to notopodia (= possibly ovarium, Støp-Bowitz).

Pydigium rounded, with pair of long anal cirri and pair of rounded glandular lobes lateral to cirri. Pharynx well developed, muscular, cylindrical, with jaws and circlet of 18 terminal papillae (Støp-Bowitz).

Distribution: South Pacific (off Easter Island, off Peru), South Atlantic (Gulf of Guinea off West Africa), North Atlantic (Sargasso Sea). In plankton, surface to 222 fms.

Literature Cited

Augener, Hermann

1927. Polychaeten von Curaçao. Bijdragen tot de Dierkunde, vol. 25, pp. 39–82, 9 figs.

Berkeley, Edith, and Berkeley, Cyril

1935. Some notes on the polychaetous annelids of Elkhorn Slough, Monterey Bay, California. American Midl. Nat., vol. 16, pp. 766–775.

1941. On a collection of Polychaeta from southern California. Bull. Southern California Acad. Sci., vol. 40, pp. 16–60, 1 pl.

1948. Annelida, Polychaeta errantia. No. 9b (1) *in* Canadian Pacific Fauna, Fisheries Research Board of Canada, 100 pp., 160 figs.

1961. Notes on Polychaeta from California to Peru. Canadian Journ. Zool., vol. 39, pp. 655–664, 12 figs.

Chamberlin, Ralph V.

1919. The Annelida Polychaeta. Mem. Mus. Comp. Zool. Harvard, vol. 48, pp. 1–514, 80 pls.

Charrier, Henri

1924. Novelle espèce d'Annélide polychète de la famille des Pilargidiens, *Pilargis perezii*. Bull. Stat. Biol. Arcachon, vol. 21, pp. 11–17, 2 figs.

Day, J. H.

1957. The polychaet fauna of South Africa, 4: New species and records from Natal and Mozambique. Ann. Natal Mus., vol. 14, no. 1, pp. 59–129, 8 figs.

1963. The polychaete fauna of South Africa, 8: New species and records from grab samples and dredgings. Bull. British Mus. (Nat. Hist.) Zool., vol. 10, pp. 383–445, 12 figs.

Ditlevsen, Hjalmar

1917. Annelids, I. Pt. 4 *of* vol. 4 *in* The Danish *Ingolf* expedition, 71 pp., 24 figs., 6 pls.

Ehlers, Ernst

1908. Die bodensässingen Anneliden aus den Sammlungen der Deutschen Tiefsee-Expedition. Wiss. Ergeb. Deutschen Teifsee-Exped. 1897–1899, vol. 16, no. 1, pp. 1–168, 23 pls.

1920. Polychaeten von Java und Amboina: Ein Beitrag zur Kenntnis der malaiischen Strandfauna. Abh. Ges. Wiss. Göttingen, n.f., vol. 10, no. 7, pp. 1–73, 3 pls.

ELIASON, ANDERS

1962. Undersöknigar över Oresund, 41: Weitere untersuchungen über die polychaetenfauna des Öresunds. Lunds Univ. Arsskr., n.f., vol. 58, no. 9, pp. 1–98, 10 figs.

FAUVEL, PIERRE

1919. Annélides polychètes des Iles Gambier et Touamotou. Bull. Mus. Hist. nat. Paris, vol. 25, pp. 336–343, 1 fig.

1920. Les genres *Ancistrosyllis* et *Pilargis* (Hesionidae). Bull. Soc. Zool. France, vol. 45, pp. 205–213, 1 fig.

1923. Polychètes errantes. Vol. 5 *of* Faune de France, 488 pp., 181 figs.

1925. Sur le *Pilargis verrucosa* Saint-Joseph et *Pilargis perezi* Charrier. Bull. Soc. Zool. France, vol. 50, pp. 88–90.

1932. Annelida Polychaeta of the Indian Museum, Calcutta. Mem. Indian Mus., vol. 12, no. 1, pp. 1–262, 40 figs., 9 pls.

1953. Annélides polychètes de la Croisière du *President Théodore Tissier* aux Antilles (1951). Bull. Inst. Océanog. Monaco, no. 1033, pp. 1–23.

FRIEDRICH, HERMANN

1950. Zwei neue bestandteile in der Fauna der Nordsee. Neue Ergeb. Probl. Zool. Klatt Festschr., Leipzig, pp. 171–177, 2 figs.

HARTMAN, OLGA

1945. The marine annelids of North Carolina. Bull. Duke Univ. Mar. Sta., no. 2, pp. 1–51, 10 pls.

1947. Polychaetous annelids. Pt. 8. Pilargiidae. Allan Hancock Pacific Exped., vol. 10, pp. 483–523, pls. 59–63.

1951. The littoral marine annelids of the Gulf of Mexico. Publ. Inst. Mar. Sci. Univ. Texas, vol. 2, no. 1, pp. 7–124, 27 pls.

1954. Marine annelids from the northern Marshall Islands. Geol. Surv. Prof. Pap., Washington, D.C., no. 260–Q, pp. 619–644, 10 figs.

1959. Catalogue of the polychaetous annelids of the world, parts 1, 2. Allan Hancock Found. Publ. Occ. Pap., no. 23, pp. 1–628.

1960. Systematic account of some marine invertebrate animals from the deep basins off southern California. Allan Hancock Pacific Exped., vol. 22, pp. 69–214, 19 pls.

1963. Submarine canyons of southern California, 3: Systematics: Polychaetes. Allan Hancock Pacific Exped., vol. 27, pp. 1–93, 4 figs.

1965. Deep-water benthic polychaetous annelids off New England to Bermuda and other North Atlantic areas. Allan Hancock Found. Publ. Occ. Pap., no. 28, pp. 1–378, 32 pls.

HARTMANN-SCHRÖDER, GESA

1959. Zur Ökologie der Polychaeten des Mangrove-Estero-Gebietes von El Salvador. Beitr. Neotrop. Fauna, vol. 1, pp. 69–183, 188 figs.

HESSLE, CHRISTIAN

1925. Einiges über die Hesioniden und die Stellung der Gattung *Ancistrosyllis*. Ark. Zool. Stockholm, vol. 17, pp. 1–36, 2 pls.

HORST, R.

1921. A review of the family of Hesionidae with a description of two new species. Zool. Med. Leyden, vol. 6, pp. 73–83.

JONES, MEREDITH L.

1961. Two new polychaetes of the families Pilargidae and Capitellidae from the Gulf of Mexico. American Mus. Nov., no. 2049, pp. 1–18, 27 figs.

KITAMORI, RYONOSUKE
1960. Description of two species of Pilargiidae (Annelida: Polychaeta) from the Seto-Inland Sea. Bull. Japan Soc. Sci. Fish., vol. 26, pp. 1086–1090, 2 figs.

KORSCHELT, EUGEN
1893. Über *Ophryotrocha puerilis* Clap.-Metschn. und die polytrochen larven eines anderen Anneliden (*Harpochaeta cingulata*, nov. gen., nov. spec.). Zeits. Wiss. Zool. Leipzig, vol. 57, pp. 224–289, pls. 12–15, 6 figs.

LANGERHANS, PAUL
1881. Über einige canarische Anneliden. Nova Acta Ksl. Leopoldino-Carolina Deutschen Akad. Naturf., vol. 42, pp. 93–124, 2 pls.

MCINTOSH, WILLIAM C.
1879. On the Annelida obtained during the cruise of H.M.S. *Valorous* to Davis Strait in 1875. Trans. Linn. Soc. London, ser. 2, vol. 1, pp. 499–511, pl. 65.

MESNIL, FELIX, and FAUVEL, PIERRE
1939. Polychètes sedentaires de l'expedition du *Siboga:* Maldanidae, Cirratulidae, Capitellidae, Sabellidae et Serpulidae. Vol. 24.2 *in* Weber, *Siboga*-Expedition, 42 pp., 12 figs.

MONRO, C. C. A.
1930. Polychaete worms. Vol. 2 *of Discovery* reports, 222 pp., 91 figs.
1933a. The Polychaeta errantia collected by Dr. C. Crossland at Colón, in the Panama region, and the Galàpagos Islands during the expedition of the S. Y. St. George, part 1. Proc. Zool. Soc. London, pp. 1–96, 36 figs.
1933b. On a new species of Polychaeta of the genus *Pilargis* from Friday Harbour, Washington. Ann. Mag. Nat. Hist., ser. 10, vol. 11, pp. 673–675, 4 figs.
1936. Polychaete worms, 2. *In* vol. 12 *of Discovery* reports, pp. 59–198, 34 figs.

MÜLLER, FRITZ
1858. Einiges über die Annelidenfauna der Insel Santa Catharina an der brasilianischen Küste. Arch. Naturg., vol. 24.1, pp. 211–220, pls. 6–7.

PETTIBONE, MARIAN H.
1963. Marine polychaete worms of the New England region, 1: Families Aphroditidae through Trochochaetidae. Bull. U.S. Nat. Mus., no. 227, pp. 1–356, 83 figs.

RANGARAJAN, K.
1964. A new polychaete of the family Pilargidae from Palk Bay, South India. Journ. Mar. Biol. Assoc. India, vol. 6, pp. 122–127, 12 figs.

SAINT-JOSEPH, BARON ANTOINE DE
1899. Annélides polychètes de la rade de Brest et de Paimpol. Ann. Sci. Nat. Paris, sér. 8, vol. 10, pp. 161–194, pl. 6.

SOUTHERN, ROWLAND
1921. Polychaeta of the Chilka Lake and also of fresh and brackish waters in other parts of India. Mem. Indian Mus., vol. 5, pp. 563–659, pls. 19–31, 18 text-figs.

STØP-BOWITZ, C.

1948. Polychaeta from the *Michael Sars* North Atlantic deep-sea expedition 1910. *In* Rep. Sci. Results *Michael Sars* North Atlantic Deep-sea Exped. 1910, vol. 5, no. 8, pp. 1–91, 51 figs., 5 tables.

THOMAS, P. J.

1963. Polychaetous worms from the Arabian Sea, 1: A new species of the genus *Loandalia* Monro. Bull. Dept. Mar. Biol. Oceanogr. Univ. Kerala, vol. 1, pp. 29–34, 1 fig.

TREADWELL, AARON L.

1941. Polychaetous annelids from the New England region, Porto Rico and Brazil. American Mus. Nov., no. 1138, pp. 1–4, 12 figs.

USCHAKOV, P. V.

1950. Polychaeta from the Sea of Okhotsk. Explor. Mers d'USSR (Issled. dalnevost morei SSSR), vol. 2, pp. 140–234 [in Russian].

1955. Polychaetes from the seas in the Far East. Akad. Nauk USSR, Opredeliteli po Faune USSR, no. 56, pp. 1–445, 164 figs. [in Russian].

USCHAKOV, P. V., and WU, B. L.

1962. The polychaetous annelids of the families Syllidae, Hesionidae, Pilargiidae, Amphinomidae, and Eunicidae (Polychaeta, Errantia) from the Yellow Sea. Stud. Mar. Sinica, no. 1, pp. 57–85, 3 pls. [in Russian and Chinese].

WEBSTER, HARRISON EDWIN

1879. Annelida Chaetopoda of the Virginia coast. Trans. Albany Inst., vol. 9, pp. 202–272, 11 pls.

WESENBERG-LUND, ELISE

1962. Polychaeta errantia. *In* Reports of the Lund University Chile Expedition 1948–49. Lunds Univ. Arsskr., n.s., vol. 57, no. 12, pp. 1–137, 49 figs., 2 tables.

ZACHS, I.

1933. Polychaeta of the North Japanese Sea. Inst. Hydrobiol. Explor. Mers USSR, vol. 19, pp. 125–137 [in Russian with German summary].

U.S. GOVERNMENT PRINTING OFFICE:1966